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ABSTRACT

Library use is declining in the United States because print media is no longer the preferred media of a large majority of the population. Of the wide variety of media used for information, instruction, and entertainment, only a small variety is available through the public library. Selection of appropriate media formats for library acquisition depends upon local needs. To increase the variety of media available, several models of interinstitutional cooperation, networking, and consolidation may be used. To increase cost effectiveness, more preliminary research on media utilization and costs is imperative. New media in the library will create new personnel needs. Media specialists, teachers, and a variety of paraprofessionals, as well as librarians, will staff multi-media libraries. Data on the inclusion of non-print media in library budgets and a sixty-item bibliography are included. (KC)

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A Commissioned Paper
under the
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Teachers College, Columbia University
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Part B

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Division of Library Programs
U. S. Office of Education
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Prepared
by

Paul V. Robinson, Ed.D.

Division of Library Programs
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PART 1. BACKGROUND AND RATIONALE

1.1 Introduction

> A great Central Library is, of course, needed but even before it in usefulness, I place the local libraries, which reach the masses of the people. (8:15)

In this 1903 statement to the Philadelphia Free Public Library, Carnegie verbalized his commitment to two concepts which directed the development of the free public library under the Carnegie program; decentralization of the library location into smaller communities and the potential mass education effects which this institution could have in the community. His beliefs were further evidenced by his method of awarding building grants on the condition that the local authority provide (1) a suitable site and (2) adequate provisions for library maintenance. The community being largely responsible for the financing, selection, and purchase of library materials.

These concepts came from a period in United States development when philanthropy played an important role in formulating American educational structure--formal and informal--and when "an education" was difficult to secure and highly valued and prestigious. In this period about 4 percent of the population was enrolled in high schools with an average per pupil cost of less that $20 (1970, 28.5 percent and $816 per pupil). The growth of applied

technology had scarcely begun and self-education played a major role in placement and advancement in the emerging structures of business and industry. The concept of self-study and education for the industrial trades was one major factor which motivated Carnegie to establish libraries in areas which had fewer opportunities for formalized education.

The emergence of mass media was yet to occur--even the presence of the daily large-scale newspaper did not take place until the Carnegie funding program was well established (total U.S. daily circulation in 1900 was about 15 million copies; U.S. daily English language newspaper circulation in 1972 exceeded 62 million copies, plus an additional 50 million for Sunday newspapers)--so that a print-oriented conception of the library grew from the print tradition of information storage and consumption.

With few exceptions the public library maintains a similar character and carries out management patterns established in this early period.*

The impact created by mass media and readjustments in social structure have failed to effect the major library operations or deal with the public library's potential effect within communities whose informational

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*The presence of audiovisual materials--films, recordings--are used in this literary tradition, and by their presence alone, the library offering does not change markedly.

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requirements have undergone major changes, whose awareness of social identity has become heightened and whose value structures have become more diverse. Since libraries depend largely upon a free-choice condition to determine their users, highly selective factors brought about by these information and social changes, cause both the use and the non-use of library program offerings. (In public education reaction to these changes occurs more readily because of enforced attendance--captive audiences--and the demand for outputs in performance by the local community.)

The decline in public library use is evident throughout the country, but particularly in the inner city where social conduct and linguistic patterns vary widely. These social and linguistic characteristics are major factors to consider in a public service institution since these groups constitute major portions of the population (New York City has the largest black population of any city in the world and Los Angeles is one of the major Spanish-speaking cities in the western hemisphere). Restraints and conditions in library management and informational offerings often inhibit the library's usefulness to these groups.

Donald A. Riechmann, director of the Albuquerque Public Library, has described the effects of a Model Cities experimental library in the system which uses non-standard approaches in materials selection and library operation.

> The Model Cities experiment could greatly affect our total approach to library management. It is already

> changing some of our attitudes. We librarians have too long discouraged the use of our libraries by the way we operate. . . . it has forced us to look at all the rules and regulations that we thought were necessary to run a library but that just aren't proving necessary--or even desirable. (59:35)

A thorough look at the library collection--print or nonprint--cannot be undertaken adequately by applications of standards and formulae. Carnegie's operational principle of involvement of the community to determine library purposes and the format and content selections, seems obvious. Communication behavior grows from individual and social needs. When materials and facilities for communication and learning do not provide an individual appropriate access, his need reduction seeks outlet through other behavior. Studies of who uses the library are of benefit to maintain a status quo operation. An additional way to find out how the library can neet the needs of the community is to study the nonusers within that community--their communication habits, needs, and social organization.

1.2 Book and Nonbook Orientations in Information Formats

Discussion which considers format of materials is more usefully centered about materials viewed on several continuums. These continuums should focus upon communication media considered in terms of their abstractness-reality, user's age, type of content, etc., those criteria which are useful in defining communication needs and user patterns. To view format as the criteria to determine

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those services which libraries or information centers should provide attacks the problem as one of administration convenience. Further, the book/nonbook approach creates dichotomies which are artificial and divisive within leadership groups whose chief purpose should be the development of solutions which can provide improved informational services to a diverse public. It is this diversity of public purpose, interests and skills which could better test the ingenuity of groups providing these services.

Berelson has described the communication effects achieved through rewards in book-reading activity as:

> (1) the instrumental effect (e.g., fuller knowledge of a practical problem and greater competence to deal with it); (2) the prestige effect (e.g., relief of inferiority feeling by reading what increases self-approval); (3) the reinforcement effect (e.g., reinforcement of an attitude or conversion to another attitude toward controversial issues); (4) the aesthetic effect (e.g., obtaining aesthetic experience from specimens of literary art); and (5) the respite effect (e.g., finding relief from tensions by reading whatever offers pleasant distraction). (43:489)

Since these characteristics deal with effect, implicit in the categories are purposes which direct individuals and groups to seek out communication. These effects do not appear to be restricted to book-reading activity, but apply to the broader communication media. In a direct sense all media reflect our knowledge and experiences against the mirror of authenticity, for comparison to one's knowledge and skills base and/or assessment of experience in terms of what is valued.

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But not all individuals have the interest, capacity or skills for gaining from a highly symbolic format, nor is skill in reading necessary to meet the need reduction effect in the communication process. Translation to and creation of other formats--mediated and live--accomplish this purpose with equal effect (filmed, recorded, illustrated, and group discussion or interaction of various sorts).

A major concern in communication activity is that of message design to reach and sustain the interest in the communication, whether it be a simple child's story, or a complex analysis in science. Schramm has described the conditions under which a message creates an effect upon the reader, viewer or listener.

1. The message must be so designed and delivered as to gain the attention of the intended receiver.
2. The message must employ signs which refer to experience common both to the sender and receiver, so as to "get the meaning across."
3. The message must arouse personality needs in the receiver and suggest some ways to meet those needs.
4. The message must suggest a way to meet those needs which is appropriate to the group situation in which the receiver finds himself at the time when he is moved to make the desired response. (43:121)

The reference to "message" in this citation is independent from its format (book, film, etc.) but lies in the motivations and characteristics of the audience.

When one accepts reward as a determinant of behavior, the conclusion which follows is that free-choice activities are carried on because they result in desirable rewards and achieve purposes useful to individuals. Characteristic

activity of individuals and groups therefore can be presumed to provide an index to those behaviors which result in need reduction. Communication which ignores these patterns or which does not provide activities which incorporate them, establishes selective factors in determining which audience chooses to use a particular format in its media consumption.

Studies of the time spent in language communication activities show large blocks devoted to listening and speaking, with relatively less time spent in reading and writing (36:178):

Listening	45 percent
Speaking	30 percent
Reading	16 percent
Writing	9 percent

Other studies have concluded that there is a tendency for individuals with high intelligence to spend more time reading, with lower cultural and educational levels showing a greater preference for listening.

Patterns of self-selection do not necessarily represent either "freedom to choose" or "best selection." These choices are more likely to represent alternatives which are "easy to get at"--accessibility--or "known to exist"--availability. Surrounding the decision to use a source of information lies a complex of administrative, social, financial and skill-demanding requirements (the System) which the user must penetrate in order to satisfy his need for information. The stratification through self-selection of materials by the public therefore is largely related to

barriers placed in its path by the format of the material, accessibility to a desired format, and availability of appropriate content.

The mass media generally experience this same problem in the self-selecting audience to which they offer information in a variety of formats. One of its chief activities in serving audiences has been interaction with users and nonusers--surveys, polls and interviews--to determine the extent of its reach and effectiveness in meeting audience requirements. It has recognized the stratification principle and has been responsive to it through programming policies and format changes within the media's capability.

Since both the library and mass media experience self-selection by their users, an examination of audience characteristics can provide an overview of who uses the media, how extensively, and their purposes for selecting the particular communication medium from others available to them.

Use of the Library

The literature which describes use of public libraries as "sources for print material" is quite clear on a number of points. Of all communication media, books are most often sought out only by a select audience with above average educational skills (5, 12). In assessing the role of media within the public library a number of issues can

be raised through examination of the following characteristics of library users.

1. Among the major public media of communication the book attracts the smallest audience--about one-fourth of the adult population reads one or more books per month.

2. Book readers tend to use other media (except radio and TV) more than do nonreaders of books.

3. About one in ten adults and one in three children and young people are "real users" of the public library (defined as: at least once a month). Of books read in U.S. the public library supplies about 25 percent.

4. The public library serves the middle class (occupation and economic status) more than upper or lower classes; single persons more than married; and whites more than Negroes.

5. The better educated use the library more than less educated; the young, more than the old; and women slightly more than, and different from, men.

6. Library use varies inversely with the size of the city down to the 25,000 population level; and library use is directly related to accessibility.

7. Nearly half the books borrowed are juvenile and two-thirds of the circulation is fiction; nonfiction circulation is highly concentrated among a small homogeneous group of readers (students and educated readers). Library clientele is augmented about 20 percent by indirect users of circulative books.

8. The reference use of the public library is small compared to borrowing use and youth use it primarily related to school assignments--adults use it mainly for fact-finding.

9. Newspapers are of greater importance as reference than for current reading.

Use of the Mass Media

The mass media of communication present less clear descriptors of audiences. This is due to variety in types of program materials available and methods of sampling audiences. There do appear sharp contrasts in potency among the media to reach large segments of the population in a variety of geographical and environmental settings. The mass media enter the home and provide an "accessibility" to information not achieved either through the public library or the public schools. Program selection is therefore a function of the family unit and individual choice operates on a noninstitutionalized basis. "Availability" from the mass media is limited by programming decisions more often related to commercial rather than educational motives. However, mass media educate and mold opinion and shape habits to a degree startling to the educational community.

Newspapers. That newspapers serve primarily as reference material in libraries was pointed out earlier. In the home they reach all but the very young (44 percent read newspapers by the age of seven). About 85-90 percent of the adult population read a newspaper regularly and nearly 98 percent of all readers read articles on the front page, but only 58 percent read something on another page. This other reading varies according to age with older readers using the media for information and news related to

public affairs; young persons read for entertainment and generally are introduced to the paper because of pictorial elements. Increased education and economic status have the effect of increased use of information on public affairs, sports and society news; higher educational level does not bring about any decline in picture and cartoon reading. Table 1.1 compares the book and nonbook readers' behavior in various other media (43:453).

Broadcast media. The improved effects of radio over the newspaper in informing the public has been recognized through its personalizing affect. Radio has suffered loss of audiences since the introduction of television. Both radio and television, however, maintain a broad appeal and cut across all groups and classes within our population.

About 6,600 AM and FM commercial stations feed the radios of America. These radios are present in 98 percent of the American households with a potential audience of over 191 million people (93.5 percent of the population: additionally, 75 percent of U.S. automobiles are equipped with radios). It is an ever present source of news, music and social commentary. The average listening time now stands at approximately two hours a day, compared to over four hours in 1950. Through diversity in programing, radio attempts to reach mini audiences within the population and is most often used as a personal extension into the worlds of information and entertainment, primarily to

Table 1.1 Relationship of Book Reading to the Use of Other Types of Communication

Communications Behavior	Percentage of Book Readers*	Percentage of Nonreaders of Books
Read one or more newspapers every day	91	76
Listen to the radio two or more hours a day	69	68
Read two or more magazines regularly	71	39
Attend two or more motion pictures a month	58	45
Hear one or more speeches or talks a year	29	14
Sometimes read government bulletins	58	37

Source: (43:453).

*Book readers are defined as adults who have read one or more books during the past year.

teenagers. It is listened to more in the winter than in the summer months with the 7-9 a.m. winter periods attracting peak audiences.

Of all the mass media television has been described as the one shaping our culture. No longer in its infancy television sets are owned by 97 percent of American households with an audience of 189 million people. Estimates are that broadcast educational television reaches 55 percent of this audience (103 million). Home viewers spend an average of six hours a day with their sets switched to "on."

Both potency of the media and size of the audience have changed American communication patterns. Children begin using this medium at an early age. By the age of five, 80 percent are viewing; this rises to 90 percent by age six. A great amount of time is devoted to viewing in the early school years but drops off in the teens as other social and communication activities begin to receive more emphasis. This drop off is particularly evident in children with high intelligence.

Television has had an impact on the other media among the less well educated since they devote more time to it and less to other communication activity. The heaviest viewing is in the evening period from 7-10 and heavier during the winter months.

Older TV viewers favor newscasts, forums, music and quiz shows. The age group of 30-50 favor dramatic programs.

The elderly like comedy-variety programs, sports and films.

Motion pictures. Only about 15 percent of the population attends a motion picture showing once a week or oftener yet this constitutes about 70 percent of the theater admissions. The effect of television is most apparent upon this medium. The motion picture attracts a highly selected audience with common age characteristics. The majority of the movie audience is under the age of thirty, over half are under twenty, and a third under the age of fifteen. Adults over fifty seldom attend. The single person attends more than does the married person.

Summary of characteristics of self-selected media.

1. The mass media reaches larger audiences of more diverse backgrounds and interests, than does the library.

2. Most media attract specific audiences with the exception of television and even here time-of-day serves as a selective factor.

3. Book readers are generally heavier users of other media.

4. Primary use of print and nonprint materials are recreational in nature.

Learning Through the Media

Self-selection of the media format is of importance in considering the mass media as an educative channel; it is less so in formal educational activity since this process depends heavily upon the teacher working with a

"captive" audience. The question of effectiveness shifts from one of attracting an audience to one of producing learning through the media. Therefore, two types of selectivity are operating when a teacher intervenes in the selection process: (1) the selection skills of the teacher and (2) the potential of a selected media to effect learning on the part of the student.

Generalization from research is made difficult because of the specific nature and quality of individual research studies. The conditions studied do not necessarily carry over between media formats because of age level studied, specific characteristics of the media used, or limitation in the number of formats compared, etc. Therefore, broad statements become conditional and offer primarily a direction toward "making best choices." This does not mean that educational research serves no useful purposes, only that those purposes served must be known, as well as the audience characteristics and the potential of the media in relation to purpose and audience. With these limitations in mind, consider some of the trends in relation to format and learning.

A large number of studies have been undertaken on the comparative effects of the print versus aural formats. When retention of material has been the chief criterion, two directions are noted. These relate to (1) simple content material and (2) complex content material. In simple materials (1) the retention appears highest when both audio

and visual modes are used and are mutually supportive (no extraneous cues present) and (2) aural, alone, is better than print, alone, for most audiences and for those of lesser intelligence (including the retarded), when meaningful content is involved. In retention of complex materials, results are varied but tend to favor the print format depending upon (1) the situation in which the communication occurs, (2) the reading and listening habits of the learner, and (3) the nature of the subject matter.

For purposes of persuasion, in comparisons of face-to-face interaction versus transmitted voice and print, the order of effectiveness is (1) speech, (2) radio, and (3) print. When the live contact is removed, a transmitted voice is superior to print for purposes of persuasion.

Carver (60:26) conducted a series of studies to compare variables of aural and printed modes in difficulty of material, type of material, mental functions involved and the effect of educational background. He concluded (1) the effectiveness of the auditory mode varies inversely with the difficulty of the material, (2) auditory material effectiveness is increased with meaningfulness of the material, (3) the mental functions of recognition, recall and suggestibility seem more effectively aroused in the listening situation, whereas critical attitudes and discriminative comprehension are favored by reading. He also points out that the audio situation is of value where the personal

factor plays a customary part, comedy or drama, and (4) the higher the educational level, the greater is an individual's ability to profit from auditory presentation.

Materials which are graded by reading comprehensibility formula and presented as listening or reading activity, tend to be only slightly more comprehensible through reading.

Over the last ten years experimentation in learning theory has assumed its direction by paying attention to the relationship between the purposes of the learning activity (objectives) and the type of learning to be accomplished (cognitive, affective or psychomotor domains of learning). Gagné, Bloom and others have focused their study upon school activity by recognizing and identifying hierarchies within these areas. This recognition of differing types of learning (domains) and hierarchies (classifications based on what the learner does) within these domains has provided a useful approach by which instruction can be designed and evaluated. It has also proved useful in grouping data regarding the effectiveness of various media in achieving learning objectives. Allen (24:8-12) has compared the various media by their relative effectiveness in achieving six of these learning objectives utilizing a high, medium and low scaling (see Table 1.2).

In summarizing the accomplishments of instructional technology and media, the ERIC Report from Stanford comments:

Table 1.2 Instructional Media Stimulus Relationships to Learning Objectives

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Instructional Media Type	Learning Objectives					
	Learning Factual Information	Learning Visual Identifications	Learning Principles, Concepts and Rules	Learning Procedures	Performing Skilled Perceptual-Motor Acts	Developing Desirable Attitudes, Opinions & Motivations
Still Pictures	Medium	HIGH	Medium	Medium	Low	Low
Motion Pictures	Medium	HIGH	HIGH	HIGH	Medium	Medium
Television	Medium	Medium	HIGH	Medium	Low	Medium
3-D Objects	Low	HIGH	Low	Low	Low	Low
Audio Recordings	Medium	Low	Low	Medium	Low	Medium
Programed Instruction	Medium	Medium	Medium	HIGH	Low	Medium
Demonstration	Low	Medium	Low	HIGH	Medium	Medium
Printed Textbooks	Medium	Low	Medium	Medium	Low	Medium
Oral Presentation	Medium	Low	Medium	Medium	Low	Medium

Source: (24:9).

> Despite the predominance of research findings that show no significant differences in effectiveness between classes taught with instructional media and those taught in the conventional ways, the empirical evidence demonstrates a distinct advantage to techniques and strategies that make adequate and creative uses of instructional technology.
>
> . . . . . .
>
> . . . many learners would give anything to get educations "as good as" that taught through mediated instructional means. (1:5)

Research literature is filled with indications of "no significant differences." When costs or other considerations come into format decisions, these assume importance in the final choice of format.

The question of which media format should be used to transmit learning has a complex answer at best. Educated guesses involve a number of decisions related to the content of the message through (1) observed audience preferences, (2) audience accessibility to a particular format, (3) purposes of the audience, (4) availability of appropriate materials, (5) effectiveness of the media format to meet learning requirements, and (6) costs in format preparation and delivery.

1.3 Formal and Informal Orientations in Education

Formal Education

The most characteristic description of today's education is diversity. This multiplicity of patterns begins in the preschool years and extends through colleges and universities. The formative period of the late 1950's is

largely responsible for these major changes. It was in this period that the financial resources of the country were being mustered, traditional school organization questioned, a methodology and new technological means were emerging to deliver messages. Voice was being given to social and educational inequities. These forces appeared to merge in the 1960's to provide power to a thrust which has made possible an educational pluralism and experimentation not experienced before in America. Yet this diversity has only begun to challenge the business of educating and individualization of instruction has seen only the corona of alternative patterns which are likely to emerge.

Individualized instruction has so far assumed three major forms: (1) individualization based upon an outside set of standards in which learning is characterized by the path a learner takes to demonstrate skill in accomplishing tasks related to predetermined objectives (CAI, programed instruction, performanced based education); (2) individualization based upon student-teacher established goals and content, usually undertaken in the school (the contract approach); and (3) individualized exploration and research based upon structuring the nonstructured within an informal educational setting or in the community environment (learning to learn). Each approach to individualization makes a number of assumptions as to what learning is about and where the "control" in education is centered. Each also

implies assumptions about the content, methods and materials required for learning.

Table 1.3 compares these individualized approaches with two more traditional types of education. Characteristic of the individualized approaches is the increased reliance upon materials as individualization increases.

Performance-based instructional approaches lend themselves to content in which there is internal logic within the material or to areas in which there can be developed performance standards for various competencies. Computer assisted instruction (CAI), Computer managed instruction (CMI), competency based education (CBE), and some portions of the British Open University are some examples which have been applied at the higher levels of education; learning systems dealing with arithmetic and reading and similar skills have been devised for the preprimary and elementary grades. Programed texts cover a wide range of secondary subject matter. Junior colleges and higher education have independently developed a wide range of materials in professional and occupational subject areas--physiology, various trades, nursing, the arts, sciences, mathematics, etc.--which utilize multi-media approaches. The Technological Application Project (TAP) in Corvallis, Oregon lists 178 systems for various levels of education in eight content areas. There is a growing interest in instruction which looks to performance criteria as a basis for self-teaching

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Table 1.3 A Comparison of Two Traditional and Three Individual Approaches to Instruction

	Traditional		Individualized		
Center of Authority	Textbook Determined	Group Needs Determined	Behaviorally Determined	Responsively Determined	Self-determined
Teacher Function	Presents and Directs	Presents and Directs (Teacher Active)	Guides	Guides	Available to Guide
Attendance	Mandatory	Class not Group	Optional	Optional	Optional
Content	Text Prescribed	Sub-group Prescribed	Program Prescribed Skill Responsive	Contract Prescribed Individually Responsive	Individual Choice
Structure of Content	Class Prescribed	Group-class Prescribed	Individually Responsive	Individual Choice	Individual Choice
Method	Exercise, Drill	Explain, Discuss	Drill, Exercise (Problem Graded)	Student/Teacher Responsive	Unspecified Discovery
Learning Environment	Desk	Classroom/ School	Resource area/ School	Resource area/ Classroom/ Community	School/ Community
Purposes and Focus	Mastery --- Content	Understanding --- Skills & Concepts	Mastery/ Understanding Skills, Concepts	Adjustment --- Process & Values	Continuous development, Values
Essential Materials	Texts, Other books, Films, Overhead, TV, Maps, Charts,	Multiple texts, Other books, Films, Overhead, TV, Maps, Charts, Reference materials, Study carrels, Games, Kits, Learning packages, Tapes, Records, Filmstrips	Learning packages, CAI, CBI, Programed texts, Games, TV, Evaluation materials, Carrels	Multiple texts, Other books, Research materials, Individually determined films, tape, records, filmstrips, learning packages, kits, study carrels, programed texts, Community resources, TV equipment & tape, Games, Study object	Community as classroom resources, Materials to create and express ideas, Texts, other books, Resource & reference materials, Films, Tapes, Records, Kits, Filmstrips, Learning packages, Study carrels, Programed texts, TV equipment & tapes, Games, Study objects

and learning.

Using this approach the AACTE is presently investigating its applicability to teacher education through its national Committee on Performance-Based Teacher Education. The stimulus which this and allied groups are supplying has not only raised questions in respect to teacher competencies, it has also opened the possibility of increased use of self-instructional practices as a part of professional preparation. A system of materials called IDI (Instructional Development Institutes) carries the improvement of instruction into school districts through films, games, group activity, filmstrips, work manuals, etc. IDI is designed to instruct on-the-job school personnel in systematic approaches to instructional improvement. Accrediting agencies for schools and universities are also looking to performance criteria rather than course outlines in their assessments of educational institutions.

Application of this approach has been used in both formal and informal education. The programed text has been used as a source of remedial work outside the school; special education has applied programing techniques to those with physical handicaps and learning difficulties. Confined individuals--the home or prison--have used it to advantage. Adult education and industrial education have created extensive learning packages which can be utilized for self-teaching.

Since there are major differences in types of skills, and learning tasks associated with these programs there are materials, facilities, and equipment not usually associated with public library programs. The Instructional Resources Center in the public schools--where they exist--take on an appearance and function unique to a school's requirements and offerings. Staffing and building functions change as well as the activity of the students. Characteristic of the materials in this approach is that they are predetermined and designed. Not all students use all materials but the materials fit into a system of learning and are created for a specific learning purpose, and utilize known facilities and equipment. This prescriptive approach need not be used in other forms of individualization since the student plays a greater part in determining his learning tasks. However, in other approaches to individualization the student may elect that these programed experiences and materials form a part of his overall instruction.

When, in 1959, Trump introduced the larger educational community to the management concepts of differential staffing and flexible scheduling, the experimentation in school organization and construction changed long-established approaches to formal education--the way it looked, the way it functioned. This emphasis on function--who does what? to whom? in what way? at what time? in what organizational pattern? with what effect--has set a tone for present educational planning. Recent approaches to

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individualization stress student involvement in determining the nature of his education and emphasize both quality and quantity in the education which he undergoes. Illich has put it:

> Universal education through schooling is not feasible. It would be more feasible if it were attemped by means of alternative institutions built on the style of present schools. . . . The current search for new educational funnels must be reversed into the search for their institutional inverse: educational webs which heighten the opportunity for each one to transform each moment of his living into one of learning, sharing, and caring. (26:v)

The alternative schools concentrate on motivating the learner and upon sharpening his observation, discriminative skills, and interaction with peers and other resources. These approaches pay attention to personal values and decision-making. The curriculum evolves from "starting points," mutually derived, rather than focusing on prescribed ends and goals. Individualization of content studied and methods of studying it are both means and ends of the educational process. Bremer has described his Philadelphia Parkway program as "open education" and a "school without walls," and has said of it:

> We are not unstructured. We are structured in a different way which gives our students a share of responsibility for their own freedom . . . to formulate their own learning experiences. (10:5)

Illich (26:108) has questioned the social and institutionalization of education in the United States. His proposed revisions rest upon four resource networks which spread equal responsibility for learning and teaching.

He proposes channels which would be readily available to the public and responsive to the question: "What kinds of things and people might learners want to be in contact with in order to learn?" He suggests these networks: (1) reference services to educational objects--things and processes; (2) skill exchanges; (3) peer-matching services; and (4) reference services to educators-at-large. These networks are defined as resources which will help the learner define and achieve his own personal goals.

Alternatives to schooling take on many forms and to characterize them one would have to look into the community from which they develop and the philosophical position of their leadership. Alternative forms of education are having and will continue to have an impact on more structured patterns of formal education.

Nor is the community-as-classroom concept of instruction in the alternative school a one-sided relationship. There has been a positive and revolutionary change in the reaction of some communities to these schools. An increasing number of communities eagerly participate in formulating plans and in bringing together the resources necessary to carry on the educational program. In a direct sense the community utilizes the school as a focal point to fulfill its hopes and aspirations for its youth.

The use of materials in the alternative school forms a major part of the curriculum. In formal education,

planning is largely based upon texts and supplementary materials. Its resources fit into logical patterns. When this planning role is shifted into the process of education, anticipation of the resources is less routine and more responsive to student need. The public library in communities where alternative schools are located have experienced increased uses for current materials and references. In demand are the mass media and access to ongoing events and agencies within the community. There is a shift toward active consumption of current information and materials.

Shane and Shane (53:185) have summarized changes likely to occur as a result of these and future-oriented education as:

FROM:	TO:
Mass teaching	Personalized teaching
Single learnings	Multiple learnings
Passive answer-absorbing	Active answer-seeking
Rigid daily programs	Flexible schedules
Training in formal skills and knowledge	Building desirable attitudes and appreciations that stimulate a questing for knowledge
Teacher initiation and direction	Child initiation and group planning
Isolated content	Interrelated content
Memorized answers	Program awareness
Emphasis on textbooks	Use of many media in addition to texts

These authors recognize the implication that these changes suggest for the learner and continue with the note that a fuller understanding of the effect of indoctrination

and self-image upon the learner is required. They also point out that study of, and need for an improved psychologically and emotionally stabilizing climate will be necessary so that the child can become secure and self-directive in his educational motivation.

The concept of the teacher as "purveyor of information" adds to the diversity of patterns in formal education, and is only gradually diminishing as a major influence in American education. Traditional approaches to schooling still predominate the public education scene (largely secondary schools). This movement away from the authority role of the teacher has occurred in part because of the nature of content covered, but also because of new methods and materials which package knowledge in the mediated format. In formal schools, materials are used as supplementary materials to reinforce teacher-presented content; newer materials are designed to present content directly to students, the teacher assuming linkage and evaluative roles. Many of these materials have been developed over the past ten years and are gradually changing the management and organization of the learning process in traditionally oriented classrooms.

Change has occurred most frequently at opposite ends of the educational spectrums of wealth-poverty and preschool-university. How long and to what level these developments continue is, in part, dependent upon enrollments and dollars flowing into the educational system.

Informal Education

Federal and local financing of education face critical periods of shortage. Pressures are increasing for discovery of more equitable approaches in raising and allocating funds for and within education. Our present system of finance is strongly supportive of an attendance base to determine where the dollars flow. This presents serious limitations on the amount and direction of experimentation within the field. Schools have and are failing to provide significant opportunities to students who "occupy a seat" and fail to learn, but who raise ADA monies. Heinich (20:59) has pointed out that in order to break present educational practices, ways must be found which will (1) alter the pattern by which we allocate credit to students and (2) permit dollars to follow the student. These two issues are formidable barriers to providing both variety and quality in public education and to recognizing less formal orientations to learning. I refer not to accreditation of new curricula or courses, this has been done within the school structure, but to approaches which will enable the student to participate in the decision of how and where the educational dollar can benefit him most, and where the educational activity takes place.

Among some community colleges variations from lock-step coursework can be seen. Lansing (Michigan) Community College has taken a step in this direction by providing credit courses which can be taken independently through

their resources center. The entire curriculum at Oakland Community College (Michigan) has been influenced by programed coursework using the autotutorial and programed text approaches. Oakland College assumes the appearance of a giant resources complex where attendance choices are freer and learning responsibility is shifted into mutual agreements and timings between student and teacher. "Defining" and "designing" (performance objectives and activity) in the form of mediated and live contacts is the role which the instructor carries on rather than the usual lecture pattern. Libraries in Texas and New Jersey are offering assistance in preparation for examinations which lead to the associate of arts degree. These are some breaks in the credit-attendance bulwark. Michigan has also provided leadership at the high school level. The compulsory attendance age level has been dropped to sixteen years. Through the GED tests, a student can take a high school equivalency examination even though not enrolled in school and graduate at the same time as his classmates. The state has developed a set of cassette tapes to assist in these studies. Other states are considering this approach.

With the variety of formal education patterns becoming available to students, a clear definition of "informal education" becomes difficult. A definition based upon attendance in school or institutionalization of the activity is not valid since formal education in content and informal education in socialization processes occur simultaneously--how to deal with the subject . . . the system?--what values

do the teachers really hold? etc. Time-of-day or location of the learning activity do not serve any definitive purpose, nor does the sponsorship of the messages. Learning is a continuous process, dependent upon learner values and his selection processes; it is simultaneously formal and informal.

The power of the mass media to accomplish both incidences of learning is high, regardless of the definition which is applied. Here our chief purpose is to deal with learning which is intentionally carried out and intentionally received.

The successes of Sesame Street and the Electric Company typlify this problem of definition. This TV series is used both in and out of the school-setting and is designed for specific purposes. Sesame Street was designed for pre-reading activity among three to five year olds. It consisted of fifteen content goals divided among eighty-two concept areas for which behavioral objectives were developed. Findings of interest here showed that the program did not require adult supervision, that children with no supervision did as well as, and in some cases better than, those with supervision; and the more a child watched the series, the more he learned--true across the age, sex, geographical location, socioeconomic status, mental age, at home or in school--comparisons.

The Electric Company was later developed for beginning readers, grades 1-2. In all, 130 one half-hour programs

were developed from nineteen tasks involving reading skills and word formation. Behaviorally stated objectives were devised and measured in experimental groups among the target audience groups, grades 1 and 2. Improvement in "almost all" the nineteen areas was reported; nontarget grades 3 and 4, were benefited but to a lesser degree. The effects of viewing at home were inconclusive since children not encouraged to view at home, did view almost as much as the encouraged group and the gains were similar.

These comments only touch on the question of overall improvement gained in different viewing situations which might be considered formal (school) and informal (home). These two series were carefully planned with messages based on objectives and make the point that mass media can present didactic instruction successfully in different settings.

Other experimental work in content areas carried on by TV instruction are reported throughout the literature. Molnar stated the case well:

> Based upon the educational research that we have, Schramm summarizes some 200 studies, and there are at least 500 studies, that show that television is as effective as any conventional system. Again, I cringe when people say, "Aha, not better than, therefore you shouldn't use it." (1:7)

Finn has pointed out that the two elements effecting technological change are the speed with which change occurs and the cumulate effect within the technology. He continued that our problem remains

> not so much of how to live with (instructional

technology) on some kind of feather-bedding basis, but how to control it so that proper objectives of education may be served and the human being remain central in the process. (30:196)

PART 2. THE PUBLIC LIBRARY MEDIA PROGRAM: AN ASSESSMENT

2.1 Library Program Bases for Multi-Media Cooperation

During the past fifteen years patterns of American life have undergone changes unprecedented in their effect. One impact has been the creation of incongruities within our social institutions and the population they serve. The sociological mix is simultaneously becoming more variegated and more concentrated but with new patternings. Physical mobility and distances traveled to school and places of employment have been increased as a result of suburban living and bussing of school children. Communications technology has provided an access and immediacy to information while creating barriers in communication between and within groups--the family, peer groups and communities, large and small.

Formats of information have also undergone change with many of the mass media focusing their distribution towards more specific audiences--radio, magazines, film, books. Television, the mass interpretor of culture, has also become more diversified in its short history, with educational, community, and closed-circuit audiences added to regular commercial broadcast audiences. The impact of

communication and other technologies is felt in relation to the speed of the changes which they promote and their cummulative effect upon information and the means of disseminating it. Youth accepts the mass character, though not necessarily the credibility of this communication network as it does the automobile.

We have experienced the information explosion through increase in the quantity and variety of channels by which that information is delivered. Individuals do not view their information needs as existing in any particular format, but rather as existing in multiple channels. When an individual makes a format choice he is also forced to make a choice of those channels and institutions through which he can get assistance; these decisions are governed largely by his experience with various institutions.

Unfortunately the library often is not a source considered. One study reports that among adults with less than a high school education, only 9 percent had used the library in the previous year despite the fact that over 50 percent of all adults report living within one mile of the nearest public library.

The organizing effect of technology within society can be seen through the restructuring in its traditional institutions by observing what is reorganized and how these are restructured. In public education this can be observed through its schedules, curriculum offerings, buildings, the emphasis upon materials, and teaching functions, the "what";

and the "how" is apparent in new methods used to teach, to assign students to classes, to budget, to manage the school, etc. A generalized effect which is apparent is the organization of resources about more specific goals and purposes.

In reaction to social and institutional restructuring, the public library is confronted with incongruities concerning its purposes and functions and is being pressed for improved evaluation of its services. Once conceived of as a broadly based source of print materials to complement the formal channels of education, the method used by the local library to meet demand problems was through the addition of newer materials and extension of its collection. The expansive nature of materials and media has made this solution simplistic and has outdated its methodology. Still the major problem which confronts the library is how to better serve the community in which it is located. Recall that only one in ten adults and less than one in three school schildren use the public library; that 95 percent of all visits are made by the 10 percent who make most visits; 98 percent of the books are read by the 10 percent who read most books (12:51); that one-half the book circulation is juvenile and that two-thirds of the circulation is fiction. The primary service functions of the local library has become (1) suppliers of recreational reading and (2) providers of assistance in school related activity.

Current data showing national public library expenditures for audiovisual materials and utilization are

not available. The U.S. Office of Education report on public library statistics (7) provides figures for expenditures in 1968, but these provide only general data. The national expenditure in these 1057 libraries showed that an average of 4.1 percent of the library materials resource dollar was spent for audiovisual materials (95.9 percent being allocated to print). Totaling less than three million dollars, over half of the dollars were spent in communities of 100,000 or more, where two-thirds of this was expended for films and 28 percent for recorded audio materials (95 percent total). The low level in use of other materials does not lend itself to meaningful analysis, since ongoing inner-city pilot programs could easily account for the remaining 5 percent expended for "other" audiovisual materials.

Events and trends in related social institutions add to the difficulty in defining the role of the community library in relation to media. Consider:

1. That public consumption of the print media represents a minor source of its communication activity and that this is reflected through a trend in decreasing library usage.

2. That demarcation between formal and informal education is becoming less rigid with increasing demands for variety in the format of materials for public use.

3. That competition for audience is accompanied by increased competition for financial support in all

public institutions.

4. That there is increased pressure for institutional accountability.

These problems raise issues with no easy or immediate solutions. Consideration of several alternatives and ongoing activities may be useful in exploring solutions to these problems.

Alternative Libraries As a Basis

Community Needs As a Basis. A number of efforts have been made to encourage alternative patterns for libraries to develop from the community level. This recognition of a "different type" of institution represents the other end of the continuum from which the highly specialized research libraries developed and recognizes different "communities" in its attempt to define communication needs of different groups. Characteristics of these programs are provided by Lowell Martin when he describes the Philadelphia Action Library:

(1) a community-based project, which is free of the traditional restrictions of established schools and libraries,
(2) a community-oriented program which involves students and other persons from the neighborhood in most aspects of its operation, including staffing,
(3) provision of multimedia resources selected to interest children and young people,
(4) a multistaff mix, including service teams of librarians, teachers, and other specialists,
(5) involvement of parents in the learning process, as well as children and young people,
(6) activities designed to attract (and) stimulate young people and to develop their interests (rather than simply to be available for those with the initiative to seek out the center),

(7) interagency sponsorship by the school systems and the public library, with the overall goal of fostering change in these library systems. (32:69)

The Philadelphia Center program grew from planning among community, library and school groups assisted by consultant, Lowell Martin. A grant from the U.S. Office of Education enabled the Center to undertake a systematic attack upon four definition areas: (1) an analysis of needs as a base for joint action, (2) specification of elementary and secondary student resource requirements, (3) jointly sponsored research, planning, and demonstration, and (4) research and evaluation of the program by an outside organization.

The Albuquerque Model Cities Library (59) used a less formal approach by building its library about ethnic materials and materials for the Spanish speaking community. An analysis of needs and use were to be derived from the operations level during the study. Creation of informality in atmosphere and organization of the library was to encourage people to browse and explore. Utilizing trainee staff who know the families and the community, has brought people to the library.

In both of these programs multi-media materials play an important role in attracting the community and in providing them with informative materials. Whether or not materials alone caused the major change is questionnable since other changes of major importance occurred simultaneiously: (1) a narrowing of focus in the purposes of the

library, (2) direct involvement of the local community in program activity and as staff, (3) the necessary thrust for change was provided by outside funding sources, (4) new services offered to a low-income neighborhood, and (5) location of services not identified with either school or library. These are common characteristics of the programs, differences occurred in their methods of planning, and the approach to evaluation.

The Washington, D.C. Toy and Book Library recently announced its closing due to lack of funding. Started five years ago under a $316,000 grant from the National Institute of Mental Health, the library introduced a program of lending and parent instruction in a low-income neighborhood. Educational toys, puzzles, creative play, and book activities were provided for two to five year olds and their mothers. The program encouraged infant manipulation of materials and parent participation and knowledge of the role of creative play in intellectual and physical growth. The program gained acceptance, providing toys to over a thousand borrowers each year. From a $12,000 collection of toys and books there was found to be less than a 5 percent loss due to breakage or nonreturn of materials. Budgetary cutback in the district has been given as a primary reason for not incorporating the program into its library system.

A major issue arises concerning the long range impact of these centers when support is shifted and assumed

by other agencies. Planning for this change is as important as are the feasibility questions. Institution-building recognizes this long-term problem.

Materials in public libraries have a relatively short life expectancy (6:22). Replacement and introduction of current materials at this level has been and will continue to constitute a major financial concern. Overhead costs related to the collection are high. The Albuquerque informal approach to cataloging--grouping of materials--may offset the higher costs of producing and maintaining card catalogs and trained librarians; shifting materials between locations can apparently increase the flow and variety of "new" materials available. To what degree savings in overhead can assist to sustain the "vital" quality of these library centers remains a question. How great their impact on established practices in the community will be is a long-term question.

Developmental costs for the "needs" approach are costly. The lack of trained manpower to carry out the processes of bringing a new type of program into realization must be faced. In communities where "offerings and needs" show noncorrespondence had the information and skills been at hand, changes might have been realized earlier.

Moynihan has made a cogent point when working with low-income groups--that it is very difficult to creat a sense of community. Termination of programs has an influence upon community attitude as well as an influence on

users who have newly developed habits and access to materials not before available. Already skeptical of institutions which provide formidable barriers which they have been unable to deal with in the past, reinforcement of negative attitudes toward social institutions is quickly generalized. Informal communication patterns in third-world communities is fast and effective in interpreting these terminations as extensions of their failures and powerlessness in the social structure. While research is an important component of any experimentation, its long-range effect upon groups is equally important. The duration of pilot activity is seldom long enough to overcome the novelty effect and the ultimate impact is seldom observable until the project assumes its place within normalized channels and funding; the validity of such research is therefore in doubt; the project is viewed cumulatively by the community as another paternalistic venture by an incomprehensible godfather.

Consolidation As a Basis. The needs base has grown from recognition that libraries were not meeting community requirements for the kinds of materials and services needed; it has also recognized the threatening effect in existing institutions. In consolidation activity these concerns are lessened and merger is accomplished to provide improved services from those resources available. A separate structure need not result through consolidation

since value systems often accommodate more formal approaches to teaching and learning. Consolidation relies not so much on economies achieved by high intensity use of fewer resources as it does on joint operation of a broad resource base, by eliminating duplication in overhead and capital investment costs. Nationally, in the public library the materials resources portion of budgets constitutes only 17.4 percent of total overhead costs, 82.6 percent being used to maintain and circulate the collection.

Consolidation has been suggested as one basis of reducing duplication in other local government operational costs--city and county operations, school library and public library services--thereby providing economies and a broader base for services and increased variety in the resources available. There is doubt that so simplistic a solution would provide the anticipated savings. Logistical problems in the media field become increasingly complex as size of area and size of collection increase. It is safe to say that a large part of the savings would be absorbed to simply maintain the same level of services.

Trump (20:18-19) has suggested that a community director and board of learning resources would reduce the the number of governing bodies and eliminate fragmentation in community educational efforts and resources. This concept has merits and deserves consideration, its chief

limitations lie in the make-up and size of the community to be served and the powers vested in such a body. Lack of responsiveness of boards of this type is well known to action-oriented programs in metropolitan areas.

The consolidation base has proved useful to rural community education (witness the demise of the "little red schoolhouse") by providing improved facilities and coursework options. In theory, resources have become more available, however, they are less accessible, because of distances involved.

Incidences of consolidation between school and library are few because of restrictive legislation in many states. Much more common is a sharing of staff and the introduction of liaison personnel (47:83-85). This approach can avoid legal questions by the splitting of salary sources, thus accomplishing the job but avoiding the issue.

Molz (20) describes a project in Olney, Texas, a community of 4,000, which has consolidated community learning resources into a cultural center to encompass educational activities for young and old. The local library and school system are participating in the project and credit will be available from the junior college. Working towards a common goal it is possible to overcome legal and logistic problems in small communities. Trump has pointed out that inventive institutionalization of this type has as its chief barrier

those individuals now directing and operating these institutions.

At the school level, consolidation of resources within schools has occurred at all levels from the elementary school through the university. Establishment of the instructional materials center (IMC) was encouraged as a result of governmental assistance in funding during the mid-1960's. This provided the necessary thrust for what has been called the "launching period" for the integrated school-materials programs. The extent, quality and type of consolidation varies markedly from school to school and between districts. These centers are well established within the school structure with over 85 percent having established some type of center.

Many of these consolidations have been in name only or consolidation for purpose of budgeting. Operationally, many of the programs maintain distinct activities, resources and staff. This is particularly characteristic of large districts and in institutions of higher education. More complete consolidation has occurred at the primary levels. This can be explained, in part, because of the greater stability in skill demands and in types of curricula offered. Because of these factors, there are more packaged materials available to carry out program objectives. Where there are fewer packaged materials available and when creation of materials forms a part of the learning activity, there tends to be less integration of the programs.

The multi-media program which consolidates operations now located in well-established wings of local government, raises legal and juridicational questions; these act as major inhibitors. Consolidation of resources raises issues related to elimination and/or retraining for new job functions. The issue of "size of operation" and "level of service provided" assume importance in serving user needs.

Networks As a Basis

Under The Library Services and Construction Act (LSCA) Title III (1966), support was offered on a non-matching grant basis to establish and maintain local, regional, state or inter-state cooperative networks. The impact of this program upon media programs in the public library has been negligible. However, experimentation which uses technology and produces media in printed format has been carried out by larger public libraries; these efforts have been directed toward technical services, bibliographic searches and reference work. Interchange of media packages among libraries has not come under direct study.

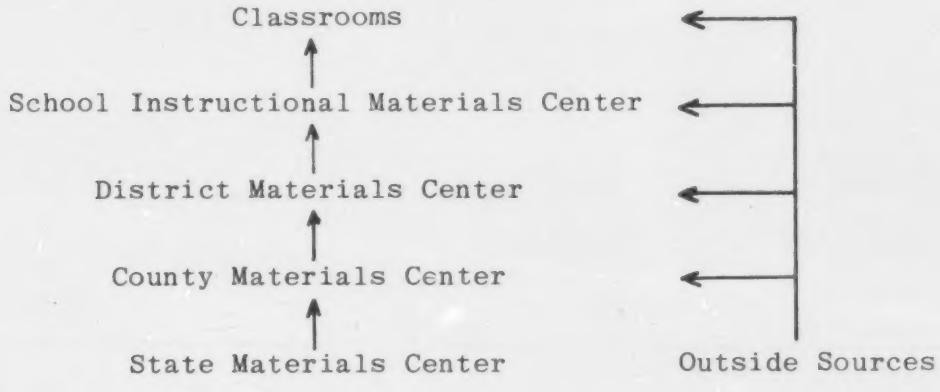
Centralized Media Networking. Some networking has grown from programs in which special collections have been organized, especially of materials for ethnic groups. The Los Angeles City Library operates one such program through its Extension Media Center. The Center grew from an earlier outreach program and stocks 250 motion picture films and 300 titles spread among filmstrips, filmstrip-record

kits, cassette recordings dealing with subjects of concern to low-income black and Spanish speaking communities. Either materials or materials and equipment are loaned to the sixty-two branch libraries in the system upon request. This is done through one of seven regional libraries or one mobile unit, or directly from the Center. These materials also form the nucleous of a public information program which is operated by volunteer community aides for low-income families in the area near the Center. A second type of service offered through the Center is a supply and maintenance service for branch library equipment. Centralized purchasing of audiovisual equipment is carried out under advisement of the Center.

Other programs of networking of audiovisual materials are beginning to be seen. The structure is present in many of the larger metropolitan library systems.

There is a vast amount of experience accumulated from school system strategies and patterns in the networking of materials and equipment for audiovisual needs. Many of these networking patterns have evolved over the last forty years to supply schools and school districts with services which they could not otherwise afford or justify. To determine what services or materials might be placed in one of several central sources for networking, major selection criteria include: (1) initial costs and maintenance, (2) extent and frequency of use, (3) formats appropriate for circulation, and (4) relevance to program (content)

objectives. Recognizing there are different types of learning materials and different uses for these materials, the strategy of delivery to the point of use appears something like this:



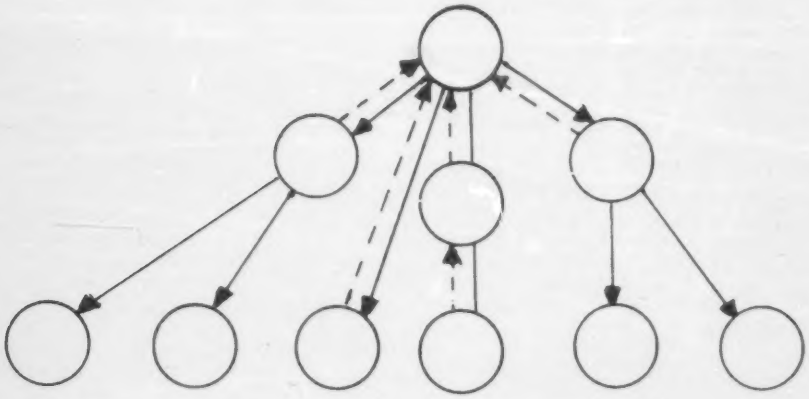
This strategy is familiar to the library in many of its operations. The stocking and placement of materials in each of these centers depends upon joint selection of appropriate materials from the criteria mentioned earlier. Blasingame (6:22-25), in fact, presents such a planning strategy for stocking and networking of print materials among academic and special libraries. There are logistics problems in media which require special presentation equipment and are therefore more complex. Application of the criteria is made to determine what materials are to be in the local library and what placed in a more centralized facility. Final decisions will depend upon local program objectives and evaluation procedures. Characteristic of this strategy is a gradual decrease in format variety as one progresses away from the point of use,

accompanied by increasing depth in content within the limited formats which are supplied. Thus while the classroom and school IMC maintain a range of learning materials, depth is supplied from sources which maintain variety in content and level.

The Los Angeles County Schools Division of Audio-visual Education is such a centralized agency and deals in three services: (1) motion picture film, (2) television services K-12, and (3) television services for community colleges. Through contractual arrangements the Division serves ninety-five school districts in the area and supplies service to about 1500 schools and IMC's. The film library contains 4400 title listings and maintains 44,000 prints for use in district programs. Often these materials supplement "frequently used" films which are owned by schools or supplied from district IMC's. The county resources are available contractually to all state established agencies, parochial and private schools; contracts are of three types--limited, long-term, and ADA. Restrictive legislation does not make these contractual resources available to other county and city agencies which are not set up by the state. This restrictive legislation is a major barrier to networking and community use of educational resources generally.

Diagrammatically, the centralized basis of networking assumes a pattern similar to the following diagram in which the solid line represents the flow of materials and

the broken line represents the flow of funding.



Other media delivery systems using this approach are seen in educational programs such as the former Midwest Program for Airborn Television Instruction (MPATI), the newly initiated Rocky Mountain States Television program and pilot studies in computer assisted instruction. In CAI programs the delivery system utilizes electronic media and various feedback mechanisms through a centralized pool of resource information.

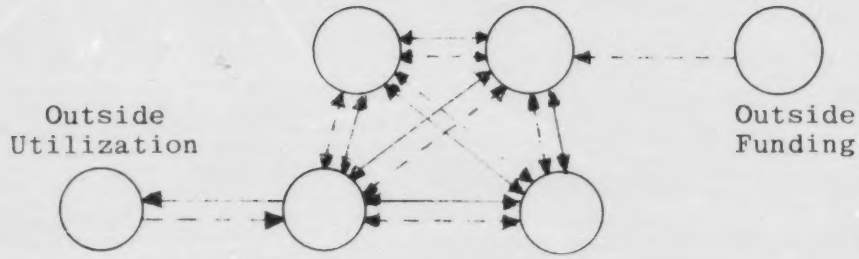
Cooperative Networking. Less familiar is a pattern now emerging among agencies who are also developers of media. This pattern depends upon a coming together of agencies, each with some specialized ability and where cooperation can extend a resource to mutual advantage. It is often described as a "consortium." Related to materials, agencies participating in the consortium focus their activities about a major common need and each agency utilizes

its local resources to build information or packages from its area of strength to provide depth in the attack on the instructional problem. A consortium of junior colleges in New Jersey is approaching the creation of self-instructional and auto-tutorial curriculum packages in coursework common throughout the systems and which can be utilized within the group of schools.

The National Special Media Institutes a consortium of universities, has used this approach to develop mediated institutes in subject disciplines. The SMI working in consortium developed a five day mediated training package for use with school district personnel. The package included print materials and a range of nonprint materials including games, films, group-centered activities, and evaluation materials.

This concept of pooling depends upon close cooperation in planning and results from mutual need, and availability of specialized resources. This approach is often found in specialized and technical libraries in print format. Its potential with other media has not been realized in part due to the generally low level of nonprint media operations by libraries and systems of libraries.

Funding of such networking is dependent upon internally committed sources, or outside sources which have an interest in the project focus. Diagrammatically, the flow of funds (broken lines) and materials (solid lines) in a cooperative networking approach might appear as follows:



Issues

Each of these approaches can bring about improved services and extend the nonprint resources available to the local library. Improved accountability can provide data on usage and costs which we do not now have available. Circulation figures provide only quantitative data and describe one level of an activity. More qualitative data regarding usage is lacking to provide the necessary program direction for development of the collection's content, the level and media formats which further the purposes of the library in the local community.

Recognition of different types and purposes of information centers--libraries--would be a big step. Development of criteria, and demographic data, have been started in experimental studies, but is not sufficiently in hand to determine either criteria or conditions which warrant new types of services or justifies existing collections.

Alternative libraries and traditional public libraries can fit into one or several of the networking

schemes once their purposes and functions have been clarified. Experimentation at the operational level--point of use--is essential before any large-scale activity is undertaken. The operations in the nonprint media are "popular" and contribute to materials available to the public. It is not known in what ways.

2.2 Finance and Expenditures in the Public Library Audiovisual Program

The 1968 survey conducted by the U.S. Office of Education showed that there were over 190 million items housed in 1057 of the public libraries throughout the United States and outlying areas. These materials were being handled and cared for by 50,000 persons with an annual operating expense of over 421 million dollars.

The library resources portion (combined print and nonprint collections) of this, is over 72 million dollars (about 17 percent of the operating expenditure). Put another way, one of every six dollars earmarked for library operations is devoted to materials purchase; the rest is given over to operating and maintaining the collection. Capital expenditures constitute another 66 million dollars. When one distributes these resources over the 3.6 million square miles of the nation, the statistics are less impressive and the inequities more apparent: (1) the bases for acquiring resources are unequally distributed, (2) some individuals have easier access to those resources which are

available, and (3) at the point of use individuals are denied freedom of choice from among those resources which are more generally available in the nation.

The factor of distribution of library resources continues to plague both librarian and library user alike. Recognized as only one of a number of public services, the public library is financed with tax dollars largely from the local level (83.1 percent nationally). Table 2.1 compares geographic regions of the United States in both actual dollars available for library operation as well as through per capita costs for its operation and for public education. Nationally, we spend about 387 times more to operate our schools than we do for operating libraries.

For library materials, five of the eight regions in the United States fall below the national per capita average ($2.41) in funds to operate their libraries. These regions are low-density in population; difficult access to the public library compounds the distribution problem.

The inclusion of larger cities in the regional data for these states presents an overly optimistic view of library services available to rural and small-town America. The regions and states with high population concentrations fare little better, since large-city populations located there account for a large share of the dollars reported available for library materials. Cities of over 100,000 utilize two-thirds of the resource dollars and represent two-thirds of the population. Division of the remaining

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Table 2.1 Per Capita Total Operating Expenditures (Wages, Salaries and Materials) for Public Libraries Serving Areas with At Least 25000 Inhabitants by Regions.*

Region and State	Operating Expenditures	Pop. 1960	Oper.Expend.Per Capita(Dollars)**	Public School Per Pupil Current Exp. 1972
U.S. Totals	421,236,405	175,153,892*	2.41	934.00
1. New England ME,NH,VT,MA,RI,CT	25,054,993	10,509,367	4 2.38	2 1018.
2. Mideast NY,NJ,PA,DE,MD,DC	121,199,062	38,479,389	2 3.15	1 1147.
3. Great Lakes MI,OH,IN,IL,WI	90,826,033	36,225,024	3 2.51	3 998.
4. Plains MN,IA,MO,ND,SD,NE, KS	28,800,599	15,394,115	6 1.87	5 885.
5. Southeast VA,WV,KY,TN,NC,SC, GA,FL,AL,MS,LA,AR	44,982,343	34,811,099	8 1.29	8 650.
6. Southwest OK,TX,NM,AZ	19,690,493	14,161,145	7 1.39	7 774.
7. Rocky Mountain MT,ID,WY,CO,UT	8,329,799	4,316,598	5 1.93	6 836.
8. Far West WA,OR,NV,CA,AK,HI	84,355,028	21,257,155	1 3.97	4 943

*No data reported in this table for Alaska or Georgia.

**Rankings indicated to the left of the per capita expenditures.

dollars is spread among smaller cities whose libraries are inadequately supplied with materials and staff.

The general state of library financing for audiovisual media is at a low level with apparent inequities in materials available. In the nation as a whole, audiovisual materials within public libraries represent a collection which is restricted to a few formats--mainly films and sound recordings.

An examination of national totals showed that about three-fourths of the public libraries reported that they had expended money for audiovisual materials as a part of their library materials funds. These expenditures ranged from $10 to $120,574 (Table 2.2). Averaging of these expenditures would only further cloud the situation. The range in the percent of libraries which report audiovisual expenditures is 51.1 percentage points (43.9-95.0); the lowest percentage is in the Southwest region and the highest in the Rocky Mountain region. Data for five of the regions indicate that the percentage of libraries having audiovisual expenditures is well above the national average (75.2). The Southwest and the Southeast regions fall considerably below the national average by 31.3 and 16.9 percentage points, with New England 3.45 points below the 75.2 figure.

Analysis by individual states reporting audiovisual expenditures is reported in Table 2.3. Here the range increases, showing dispersions from zero to 100 percent,

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Table 2.2 Percentage and Ranges of Budgets of Public Libraries Serving Areas with At Least 25,000 Inhabitants and Reporting Audiovisual Expenditures by Regions of U.S. Fiscal Year 1968[1]

Region and State	% Reporting AV Expenditures	Range (dollars)
U.S. Totals	75.2	10 - 120,574
1. New England ME,NH,VT,MA,RI,CT	71.75	121 - 31,176
2. Mideast NY,NJ,PA,DE,MD,DC	80.0	10 -111,047
3. Great Lakes MI,OH,IN,IL,WI	80.1	25 -120,574
4. Plains MN,IA,MO,ND,SD,NE,KS	86.8	68 - 28,800
5. Southeast VA,WV,KY,TN,NC,SC, GA,FL,AL,MS,LA,AR	58.3	26 - 42,977
6. Southwest OK,TX,NM,AZ	43.9	30 - 15,000
7. Rocky Mountain MT,ID,WY,CO,UT	95.0	51 - 39,746
8. Far West WA,OR,NV,CA,AK[2],HI	86.2	200 - 76,627

1. Data are for the 1057 reporting libraries only.
2. No response from Georgia or Alaska

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Table 2.3 Number and Percentage of Public Libraries Reporting Audiovisual Expenditures for Libraries Serving at Least 25,000 Inhabitants by State.

State	Number Reporting AV Expend.	Number Reporting	% Reporting AV Expend.	State	Number Reporting AV Expend.	Number Reporting	% Reporting AV Expend.
Alabama	15	21	71.4	Missouri	27	27	100.0
Alaska	NR	NR	--	Montana	5	5	100.0
Arizona	2	5	40.0	Nebraska	6	8	75.0
Arkansas	1	6	16.7	Nevada	2	3	66.7
California	70	90	77.8	New Hampshire	3	4	75.0
Colorado	11	12	91.7	New Jersey	51	60	85.0
Connecticut	14	16	87.5	New Mexico	0	4	0.0
Delaware	2	3	66.7	New York	58	76	76.3
Dist. of Columbia	1	1	100.0	North Carolina	31	46	67.4
Florida	21	26	80.8	North Dakota	3	3	100.0
Georgia	NR	NR	--	Ohio	57	67	85.1
Hawaii	1	1	100.0	Oklahoma	6	8	75.0
Idaho	3	3	100.0	Oregon	11	11	100.0
Illinois	29	39	74.4	Pennsylvania	38	59	64.4
Indiana	20	28	71.4	Rhode Island	4	5	80.0
Iowa	14	16	87.5	South Carolina	13	27	48.2
Kansas	7	7	100.0	South Dakota	1	2	50.0
Kentucky	8	15	53.3	Tennessee	6	6	100.0
Louisiana	19	33	57.6	Texas	29	48	60.4
Maine	3	3	100.0	Utah	5	6	83.3
Maryland	14	16	87.5	Vermont	0	1	0.0
Massachusetts	44	50	88.0	Virginia	23	36	63.9
Michigan	42	53	79.2	Washington	13	15	86.7
Minnesota	20	21	95.2	West Virginia	2	7	28.6
Mississippi	17	32	53.1	Wisconsin	19	21	90.5
				Wyoming	3	3	100.0
				Outlying Territories	1	2	50.0
				U.S. Totals	795	1057	75.2

with two states having supplied no response; additionally, two states show no expenditures in their public libraries for audiovisual materials, and eleven states show that all their libraries expended some funds in this area.

An analysis of eight selected states showed variation in patterns among states in respect to local, state or federal support (Table 2.4). Generally states with more funds available for library materials spent more in actual dollars for audiovisual materials but when this was expressed as percentage, no trends were apparent. The state with the least money expended on total library materials, spent the highest percentage (9.3 percent) for audiovisual materials. From this analysis one could conclude that spending for audiovisual materials is a function of an individual library's emphasis--more than likely of its administrator.

With respect to the sources of funding, among these selected states, Nevada libraries received the highest percentage of its funds from local sources (96.8) and expended the highest percentage of the materials dollars for audiovisual materials, having received no state funding and 1.7 percent from the federal level.

From this brief analysis, there is apparently little relationship between sources of funds and the percentage expended for audiovisual. The major support for public libraries lies in local funding, with nominal amounts coming from both state and federal levels. Libraries generally

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Table 2.4 Percentage of Operating Expenditures by Source of Funds and Percentage of Audiovisual Expenditures in Relation to Total Library Materials for Public Libraries Serving Areas of at Least 25000 Inhabitants for Selected States.[1]

	Total Operating Expenditures Except Contact Services	Source of Funds			Library Materials (dollars)		AV as % of Library Materials Budget
		% Local Govt.	% State Govt.	% Federal	Printed	AV	
Total U.S.	432,091,333	83.1	5.9	2.6			
California	69,115,486	93.2	0.6	1.1	11,039,078	387,184	3.4
Illinois	18,586,070	87.1	6.8	0.0	2,967,550	155,861	5.0
Missouri	12,194,012	87.2	3.5	3.7	1,956,597	137,401	6.5
Nevada	725,389	96.8	0.0	1.7	184,555	18,861	9.3
New York	65,056,222	67.3	10.9	1.6	9,114,233	265,583	2.8
Virginia	7,707,714	89.0	2.5	4.7	1,357,342	70,344	4.9
Wisconsin	9,531,598	95.4	9.7	1.6	1,349,860	43,014	3.1
Wyoming	328,188	95.8	0.0	0.3	66,732	3,804	5.4

1 Source of data used for this Table, Statistics of Public Libraries Serving Areas with at Least 25000 Inhabitants. OE-15068-68. U.S. Dept. of Health, Education and Welfare, Office of Education. 1968.

have not taken seriously the nonprint media in expenditure of their resource dollars.

Further analysis of expenditures by population size-groups (Table 2.5) showed quite consistent results in materials spending patterns for all size groups in major categories. Nationally the audiovisual expenditure represents 4.1 percent of the total amount available for library materials; 95.9 percent being expended for print materials. Combined, library materials expenditures represent only 17.4 percent of the total library operations expenditure (adjusted).

Films and recordings account for 92.1 percent of the total audiovisual materials expenditures, nationally. Of this total amount, films alone account for 62.7 percent. Because of their lower unit cost, it can be assumed that more records were purchased than films. No data are available for circulation or audiences they serve.

Cities of over 100,000 expended nearly two-thirds (62.7) of all the funds expended for audiovisual materials, nationally, and of this amount 44.2 percent of the funds available nationally were expended for films. This makes the film not only the most expensive of items purchased nationally but this spending is heavily concentrated in high-density urban centers; cities of less than 100,000 expended 56.6 percent of their monies for films (17.6 percent of the national total).

Patterns in spending in smaller cities (less than

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Table 2.5 Percentages of Expenditures for Print and Audiovisual Materials by Public Libraries with At Least 25000 Inhabitants by Population Size Groups (1968)

	25000 or more	25000 - 34999	35,000 - 49000	50,000 - 99,000	100,000 - 499,000	500,000 +	Total For Libraries Serving An SMSA
Library Resources (dollars)	72,490,837	5,417,262	6,199,061	12,135,132	24,202,313	24,537,069	8,912,273
% Print Budget	95.9 (69,518,712)	96.4	95.8	95.7	95.5	96.4	95.6
% AV Budget	4.1 (2,972,125)	3.6	4.2	4.3	4.5	3.6	3.9
A: Films	2.5	1.7	2.1	2.5	2.8	2.6	2.0
B: Sd. Records	1.2	1.1	1.5	1.4	1.3	.9	1.2
C: Other	.3	.7	.6	.4	.4	.1	.6
No. Reporting	1057	258	250	318	196	35	656
Population Served (Thousands)	117,235	7,576	10,321	21,986	38,157	39,194	97,009
Total Resources Budget as % of total adjusted oper. Exp.	17.4	20.4	20.0	18.6	17.8	15.5	21.4
Dollar per capita Expenditure for Library resources	.62 With .45* SMSA	.68	.60	.55	.63	.63	.09

*SMSA total included

100,000) showed a difference in spending pattern for "other" materials. Not only did they expend more actual dollars but the percentage of their expenditure was higher (14 percent as opposed to 5 percent). Percentages for audio recordings remained constant at about 28 percent when data were grouped into large (over 100,000) and small (less than 100,000) categories.

Two observable trends that can be seen in the "size of group" analysis are, that the larger the group size (1) the lower is the percentage of funds devoted to "other" audiovisual materials, and (2) the lower is the percentage of funds which are devoted to the total materials resources budget (print and audiovisual). This is of interest since there are continuously increasing numbers and diversity in the populations served by these libraries.

Exception to the above trends occurs in libraries operating as part of Standard Metropolitan Statistical Areas (SMSA). These libraries (1) spend significantly less in actual dollars per capita for library resources, and (2) allocate a greater percentage of their total operating expenditures to library resources rather than to overhead expenditures. SMSA expenditures for audiovisual materials closely approximate national averages when expressed in percentages.

Based upon 1057 reporting libraries, an analysis of expenditures by size of expenditure for audiovisual materials is presented in Table 2.6. "No expenditure" for

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Table 2.6 Library Expenditures for Audiovisual Materials by Public Libraries Serving Areas of At Least 25,000 Inhabitants by Expenditure Size Groupings

Reported Expenditures (Dollars)	Number of Libraries Reporting[1] Expenditure Amount	Percentage of those Libraries Reporting[2] Expenditure Amount	Cumulative Percentages[2]
0	118	13.4	13.4
1-99	47	5.4	18.8
100-499	141	16.1	34.9
500-999	127	14.5	49.4
1000-2499	192	21.9	71.3
2500-4999	138	15.7	87.0
5000-9999	52	5.9	92.9
10000-14999	19	2.2	95.1
15000-29999	32	3.7	98.8
30000+	12	1.4	100.2
Total	878	100.2	

[1]Of 1135 libraries surveyed, 78 made no response to the questionnaire, 144 did not respond to this item in the questionnaire, and 35 reported these expenditures were included in the print expenditures.

[2]Does not total 100 percent because of rounding.

audiovisual materials was reported by 118 libraries* (13 percent, nationally). About one of every five libraries spend less than $100 (19 percent); nearly half (49 percent) of the libraries reported spending under $1,000 for audiovisual materials for their programs (a maximum of $.04 per capita, assuming a base of 25,000). Since the figures represent communities over 25,000, the support as reflected in this analysis are extremely low almost at the token level.

In order to determine significant trends in the financing of audiovisual media in the public library, comparisons were made with 1965 expenditures using population size groups. These comparisons were the only groupings of data which were comparable to 1968 data. The changes are presented in Table 2.7. An overall increase in operating expenditures from 1965 showed that in 1968 there had been an 80 percent increase in this budget class; this compares closely with the 81 percent increase reported in expenditures for library resources. Per capita expenditures also experienced a sizeable increase (74.2 percent) representing an additional $.16 per capita for library resources nationally; a drop of 8.4 percent in the population served was reflected. Thus, though serving fewer people, costs for library resources increased markedly in

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*An additional 144 libraries reported data generally in the questionnaire but did not respond to this item. Although the percentage might not be effected, certainly in numbers this would increase.

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Table 2.7 Percentages of Expenditures and Changes from 1965 to 1968 for Print and Audiovisual Materials by Public Libraries Serving Areas of At Least 25,000 Inhabitants by Population Size Groups

	Changes in Percentages 1968 Totals	25,000 or More	25,000-34,000	35,000-49,000	50,000-99,000	100,000 +
Library Resources (Dollars)	81	58,573,000	3,574,000	4,391,000	9,462,000	41,146,000
% Print Budget	- 0.7	96.6	96.4	96.7	96.7	96.7
% AV Budget	0.7	3.4	3.6	3.3	3.3	3.4
A: Films	0.8	1.7	1.1	1.4	1.5	1.8
B: Sd. Records	0.0	1.2	1.3	1.4	1.2	1.1
C: Other	- 0.2	.5	1.1	.5	.6	.4
# Reporting	- 5.1	1,114	257	261	326	270
Population Served (Thousands)	- 8.4	127,969	7,693	10,938	22,573	86,765
Total Resources Budget as % of Total Adjusted Oper. Exp.	0.4	17.0	20.5	19.5	19.5	16.1
Dollar per Capita Expenditure for Library Resources	74.2 ($0.16)	.46	.46	.40	.42	.47

the three year period.

Internally no major changes occurred in the allocation of resource funds. A shift of .7 percent in funds was added to the nonprint area (from 3.4 to 4.1 percent) where films received the major increase (.8 percent) and "other" materials showed a loss of funds (.2 percent) nationally. Trends observable in this period were:

1. An overall increase in operating budgets of 80 percent accompanied by a 74.2 percent per capita cost increase ($0.16).

2. A slight change in the internal allocations favoring nonprint materials (.7 percent change) with motion picture films receiving the benefit.

3. Changes in internal allocations generally appeared to be related to amount of dollars rather than to budget class.

Other observations made earlier regarding budget class allocations still apply when changes in percentage are observed. The larger the group size:

1. the lower is the percentage of funds devoted to "other" nonprint resources,

2. the lower is the percentage of funds devoted to the resource budget (pring and nonprint) and a comparable shift upwards is seen in the operating expenditures.

2.3 Staff and Staff Training

The crucial issue facing library educators is that of finding the means to accommodate variations in their

> traditional training patterns in order to provide their students with the insights and the skills needed to meet modern responsibilities. Traditionally, library schools have focused more generally upon descriptive rather than analytic material, with more emphasis accorded to historic and factual than to conceptual or theoretical subject matter. (58:133)

As the complexity of a field increases it is accompanied by the demand for increasingly specialized personnel to operate more specialized functions. The fields of library science and education media are no exception and even now face the task of professional preparation for a variety of information-system delivery emphases. Just as a teacher utilizing media requires the efforts of professional, paraprofessional, and support staff who are not involved in the teaching act, so the library user requires personnel to back up his information gaining behavior.

The quality of personnel and their training involved in the program is crucial since it is this staff which acts as the filtering agent between the user and possible information sources. It is this staff that provides media experiences for the public through its procedures of selection and evaluation of those resources which are to be made available. That libraries are largely stocked by the print media was a decision made when there was little variety in nonprint media and at a time when the general public was information poor.

The bifurcation of the information supply field into print and nonprint has historical and social roots and implications. These exist practically because of

differences in the skills required to handle and to utilize different media, and therefore variations in the training of personnel to deal with these different skill-related operations. A bookbinder and a television repairman perform functions to accomplish a similar purpose--to put media into working order--but their training and skills are highly different. From the user's perspective also there are differences in skills required to use the book and the television media. These points may seem obvious but operationally they are critical in planning and organizing operations which rest upon the use of multi-media. Neither the specialization of library science nor educational media has come to grips with the problem of providing trained manpower for a unified program of information technology.

Present library training includes minimal coursework in media, usually concerned with its cataloging handling and basic selection procedures. Concentration in areas related to the print media, its processing, management, and selection, crowd the available curriculum time; a similar situation exists in programs designed to provide training for the field of nonprint media.

The Jobs in Media Study (JIMS) was funded by the U.S. Office of Education to: (1) probe the training problems of the field through functional job analysis techniques, (2) establish paraprofessional career ladders for the field, and (3) provide guidelines from which training programs might be developed (57:7).

As a result of the study, a listing of institutions offering media and library technical programs was produced. This listing shows that media technical programs are offered in twenty-seven states, Puerto Rico, and Canada by fifty institutions; and that technical programs for library are offered in thirty-four states and Samoa by ninety-two institutions. These form a nucleous for paraprofessional training; there are guidelines for how this training can fit into career ladders, but that major task has yet to be tackled by the field.

A concern which is more critical is the professional preparation level. Where such such training exists, it concentrates its efforts in either the print media or the nonprint media with appropriately respectable "add-ons" to meet accreditation standards. This training problem does not relate only to public library personnel and should not be so construed; it is a problem related to the larger question of, "Is the field of information technology a legitimate goal for professional training?" Finn's definition of a profession (30:167-176) may help in dealing with this question. His six criteria for a profession are:

1. An intellectual technique,
2. application of that technique to the practical affairs of man,
3. a period of long training before entering the profession,
4. an association of members into a closely knit group with a high quality of communication between members,
5. a series of standards and a statement of ethics, which is enforced, and
6. an organized body of intellectual theory constantly expanding by research. (30:168)

As separate fields, library services and educational media have met most of these criteria, as a joint field most are lacking.

The JIMS report sets out nine major functional activities to describe behaviors in the general media field. Each of the nine activities are then broken into activities and tasks to describe what people do. This behavior classification forms a matrix of those activities which constitute various job descriptions. Through this process an approach to the training problems and the level of training required can be more realistically assessed. The major activities are:

1. Organization management
2. Personnel management
3. Research-theory
4. Design
5. Production
6. Evaluation-selection
7. Support-supply
8. Utilization
9. Utilization-dissemination

Professional library and media personnel perform most of these functions at one time or another. There is a distinct difference in emphasis on a day-to-day basis, as well as in the level at which they are practiced. In media there is a heavy emphasis on (1,4,5,7,9) organization management, design, production, support-supply, and

utilization-dissemination; library activities center more heavily on (2,6,7,8) personnel management, evaluation-selection, support-supply, and utilization.

Programs which combine use of the media into multi-media programs will increase the variety of activity for which staffs are responsible. People responsible for increased activities then assume a different type and level of activity and (1) rely more heavily on more specialized personnel to carry out other functions, or (2) organize the work situation differently to allow increased responsibility for self-direction.

The training implication for this situation can anticipate increased emphasis in the management, design, and evaluation-selection functions for all media in professional training programs. Paraprofessional training programs will deal more heavily with production, support-supply, and utilization-dissemination functions in specialized areas.

At the public library level this will undoubtedly call for increased use of paraprofessionals, and trained aides or volunteer aides as is the case in the Albuquerque and Los Angeles programs.

2.4 The Library Plant

Sullivan's statement that form follows function was directed not only at architecture but to a broader principle of design. Architectural functions generally derive their

meaning from activity-related operations, but they also convey social and psychological meanings. The early architecture of Carnegie libraries lent social importance to the public library through associative meanings rather than through functional plans which expressed efficient organization; both of these approaches describe "function" but refer to it in different contexts.

Today the store-front library carries the social meaning of function to new audiences whose view of institutions has become biased by experience. This multi-level definition of function is more difficult to live with since it is neither clean cut nor socially upward-directed. The result of feeling psychologically at east in the learning situation runs counter to other social values of pride and organizational efficiency. Yet, the store-front approach does not necessarily run counter to efficient operations, nor to the pride users feel in their relationship to an institution which provides them with services which they seek out and enjoy. This clash of values constitutes a barrier between those that design and operate libraries and those who might make improved use of them.

The abandonment of fixed rows of desk spaces in the school created an important breakthrough in reorganizing classroom activity and creating a new focus on group learning and in teaching method. This step was among the first of those taken in reorganizing the curriculum and the school to provide multiple focuses for learning and creation

of variation in types of learning spaces.

Just as the classroom has changed, the instructional materials center bears little resemblance to the school library of a few years ago. Space has become more open and yet provides for individual study areas which accommodate one or several students using media--the book, records, filmstrips, tape recordings, etc. It has changed from an atmosphere of quiet soundlessness to one producing a constant ground-level noise of students searching, listening, watching, and conversing. Its functions have changed from "quietly checking-out books to read" to one of "searching to learn."

These changes have resulted from differences in attitude concerning the resources and program of the IMC; they have also resulted from behaviors accommodated by the IMC.

--Talk
--Wait
--Show
--Listen
--Read
--View
--Handle
--Study
--Make
--Store

Central to the problem of design of a learning facility is one of fitting together behaviors and space to meet the program requirements as developed through its objectives.

The clarification of program objectives confronts the public library more directly than does any other problem. Having been a broadly based institution, the narrowing of program goals appear to limit its general usefulness; but by this act it can increase its effectiveness among those audiences who are specified. Who these audiences are and what services are to be provided are crucial to considerations in building design. Establishment of the children's section recognized this need; establishment of a plan for other prioroties also remains to be done.

Education and instructional media have provided some trends to assist in determining direction in the planning. Allen and Coombs (1:3) state these as: (1) increased individualization, (2) increased accountability in determination and design of learning experiences, (3) integrated systems for teaching and learning, (4) increased emphasis on instructional materials, and (5) increased emphasis on applied research and demonstration projects. Consideration of these directions seems essential in building design.

The store-front approach in education and library design is favored by many strong points, perhaps the most obvious is its adaptability both in program and in housing. Adaptability implies a combination of flexible and more permanent installations to account for new directions and activities and to meet known program requirements. As programs change then physical requirements change--movable

walls and partitions, portable furniture, mobile storage and equipment--modules which adapt to new arrangements and uses enable the program to keep abreast of community needs.

The operational core of audiovisual program, as in the book program, is the information service area--a place to go for assistance, equipment and materials not directly accessible. Other facilities include places where users can persue their activities. These may include a comfortable lounge area for reading or television viewing, carrels where one or several individuals can use equipment to view materials or listen to recorded materials. Small rooms for group discussion and film viewing. The right design often results from the right questions.

1. What equipment or materials need to be placed out and available because of continuous use? What stored for intermittent use? What is needed to make them mobile"--accessible?

2. What equipment and materials need specialized areas or rooms? What utilities will increase the usefulness of these areas for other purposes?

3. Is there ease in overall visual supervision where it is needed?

4. Is the furniture movable? Are cabinets modular--movable? What special protection is necessary for materials and equipment requiring a special operator?--requiring security?

5. Are there areas that provide for different size groups?--or that can be easily adapted for them?

The library plant might be visualized as a welding rod, with a stabile core that slowly changes in shape and function, surrounded by a flux that permits the change to form a firmer connection with the local community.

PART 3. AN ASSESSMENT OF MEDIA FORMATS FOR PACKAGED LIBRARY MATERIALS

Educational activity has always used a variety of stimulus materials to promote learning. The advent of technology and invention has made it possible to record this instruction in many formats. Only recently has effort been given to make these materials into self-teaching packages which are designed to carry out the didactic functions of teaching--presentation, interaction and evaluation. Of these packages many still utilize face-to-face situations to complete this chain of events.

Packaged materials and formats are designed to accommodate different purposes and their usefulness is often limited either by the materials or the concept of what learning should result. Devices used to present the content serve as the human surrogate often bringing to the learning situation visual and auditory cues far beyond those possible by a teacher using the spoken mode. Devices also have a second capability, they can repeat their message for drill, to promote clearer understandings, or for different sized groups at different times. Selection of formats in these materials can be used to provide learning in a single mode or modes towards which a learning activity is focused (language tasks, visual discrimination

tasks, and associative tasks--reading for instance). The level of the content can be directed through the design of the material from that of beginners to advance levels.

3.1 Appropriateness and Selection Considerations

The question then becomes "Which formats are appropriate for library use?" This is a multi-headed question since statements of educational functions for the library and its purposes are a local-decision matter and are not easily evaluated.

The present pattern--not necessarily the most desirable one--is that public libraries provide a source of materials which present content, leaving purposes and evaluation to the user. Capabilities which are provided are generally limited to print, 16mm films, filmstrips, study prints, and recordings. Audiovisual materials have been reported in about 75 percent of the libraries with variations in formats available and greater discrepancies in actual dollars spent ($10-$120,574).

Campell and Metzner (12:50) surveyed persons who were not regular users of the library to ascertain what effect introduction of other media into the program might have upon their use of the library. Though these projections may be overly optimistic, the introduction of media has appeal for individuals not attracted by regular library collections. Libraries offering multi-media services report "enthusiastic" and "pleased" as the reaction to use

of nonprint media by library patrons. Still others report that it has been the media offerings which has kept total library circulation from showing sharp drop-offs in recent years. Multi-media are accepted by the library public as a means of gaining information and meeting communication needs.

	Percentage Who Would Use New Service	
Proposed Service	Never Used Library	Used Library, but Not in Last Year
Film Showings	22	47
Film Rental	8	27
Disc Records	10	21
Study Groups	8	19
Club Rooms	3	4

Merrill and Goodman (31) have presented a process for the selection of instructional strategies and media. This structured approach is organized about a manual suggesting alternative solutions to formal learning situations. Included are both strategies and media prescriptions based upon a five step process of determining:

1. the objective
2. the appropriate domain of learning
3. the appropriate strategy
4. the strategy prescription
5. the media prescription

Lonigro and Eschenbrenner (31:18-21) have presented a selection strategy which relates learning task-functions to production costs for the selection of media formats.

The possible alternatives in any communication situation are based upon contingencies. No single media can serve all purposes; the variety of media selected for library use will be geared to the educational activities that go on there. These will be derived from the services needed within the community.

Cost comparisons for various media are also difficult to derive because total investments give a distorted view when level of use is to be spread over the population served; heavy uses of a medium can reduce relative costs to the point that those media requiring higher initial investments can yield relatively low costs when other considerations enter in. A number of attempts have been made to account for the variables involved. Miller (13:98-101) reports some comparisons of this sort for higher education utilizing a cost-per-hour index. In this comparison, using print materials as a parity figure: nine nonprint media show lower cost ranges; four nonprint packaged media show higher cost ranges; two live modes show higher costs-per-hour of use; and one, printed programed instruction, is the same.

Not all of these media seem appropriate for library use since many involve the production of educational materials as an ongoing part of the media package. It is safe to say that (at least at this point) libraries deal in pre-packaged materials and are not the creators of educational materials. In reevaluation of this situation,

Table 3.1 was developed to show comparisons among media in most common usage by school library centers. Again using data (cost per hour of use) from the Miller study, all but the most sophisticated of the media (CAI, teaching machines, and possibly language laboratories and learning systems) show per hour cost ranges lower than those of the print media, when formal instructional procedures are a function of the institution.

There are other factors which weigh in determining the appropriateness of materials, and which assist in bringing library capability in line with its purposes and objectives. Not all libraries have need for the same materials, either by format or content area. This applies across all print and nonprint media. In Figure 3.1, adapted from Blasingame (6:22), is presented a diagramatic plotting of differences in library requirements for three types of libraries using age and frequency as criteria. The diagram raises the issue of correspondence between the library collection and periodic evaluation against library purposes and criteria of costs and maintenance, frequency of use by format, content and age. The implication being that in all materials some backup system is necessary to provide access to variety and depth in materials appropriate to the library's purposes.

Allied to the problem of materials in the nonprint area are requirements for equipment to present materials and spaces for viewing or using the media. Specific

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Table 3.1 Characteristics and Costs of Selected Media of Instruction

Type of Material	Cost of Materials (range)	Cost of Equipment Required[1] (range)	Can Be Used Individually Home	Library	Can User Actively Interact?	Special Facilities Required	Signals Can Be Sent Electronically	Cost Per Hour of Use[2]
Books and Journals	1-35	none	Yes	Yes	No	Reading Area	No	.05-10
Study Prints-Objects	1-15	none	Yes	Yes	No	Storage	No	.05-8
Audio Recordings								
Cassette Tapes	3-8	30-1500	Yes	Yes	Sometimes	Cassette Player	No	.05-8
Reel-to-reel Tapes	5-10	100-2500	Yes	Yes	Sometimes	Reel Player	Possible	.05-8
Disc Recordings	3-5	50-350	Yes	Yes	No	Record Player	Possible	.05-8
Language Laboratory	5-25	100-10000+	No	Yes	Yes	Lab Area	No	NA
Dial Access Tapes	5-10	to specs	Possible	Yes	Sometimes	Access Equipment	Yes	.01-2
Slides and Filmstrip								
Silent	1-10	25-250	Yes	Yes	No	Equip.,Carrels	No	.05-8
With Sound Source	1-15	55-450	Yes	Yes	Sometimes	Viewing Area	No	.05-8
Automatic Sound	1-15	249-2500	No	Yes	Sometimes	Viewing Area	No	.05-8
Motion Pictures								
16mm Sound Film	100-500	700-3000+	No	Yes	No	Projectors,area	No	.05-8
8mm Silent Loops	5-10	110-150	No	Yes	No	for viewing	No	.05-8
8mm Sd. Cartridge	25-150	150-550	No	Yes	No		No	.05-8
8mm Sd. Reel	25-150	140-1000	No	Yes	No		No	.05-8
Programed Text	5-15	none	Yes	Yes	Yes	Carrel or	No	.05-10
Machine Programs	5-800	25-3200+	No	Yes	Yes	Study Area	No	.05-25
Television								
Broadcast ITV	--	80-600	Yes	Yes	No	UHF Receiver	Yes	.01-5
Closed Circuit ITV								
Taped Cassette	NA[3]	995-2700+	No	Yes	Sometimes	Cassette Player	Cable Only	.03-2
Taped Reel	50-+	575-2000+	No	Yes	Sometimes	Reel Player	Cable Only	.03-2
Computer-Assisted Instruction	Line time 5-100	Rental	No	Yes	Yes	Terminal,Space	Yes	2-100
Systems								
Video-Audio	5-300	Requirements	No	Yes	Yes	Dependent on	No	NA
Multi-Media	200-5000+	vary	No	Yes	Yes	Requirements of System	No	NA

1 The Audio-Visual Equipment Directory provides specifications and costs.

2 Based on data of Miller and reported in The Fourth Revolution.

3 As used in this table, NA should be read,"Not available."

4 The sign (+) indicates higher ranges, usually for commercial and special-use equipment.

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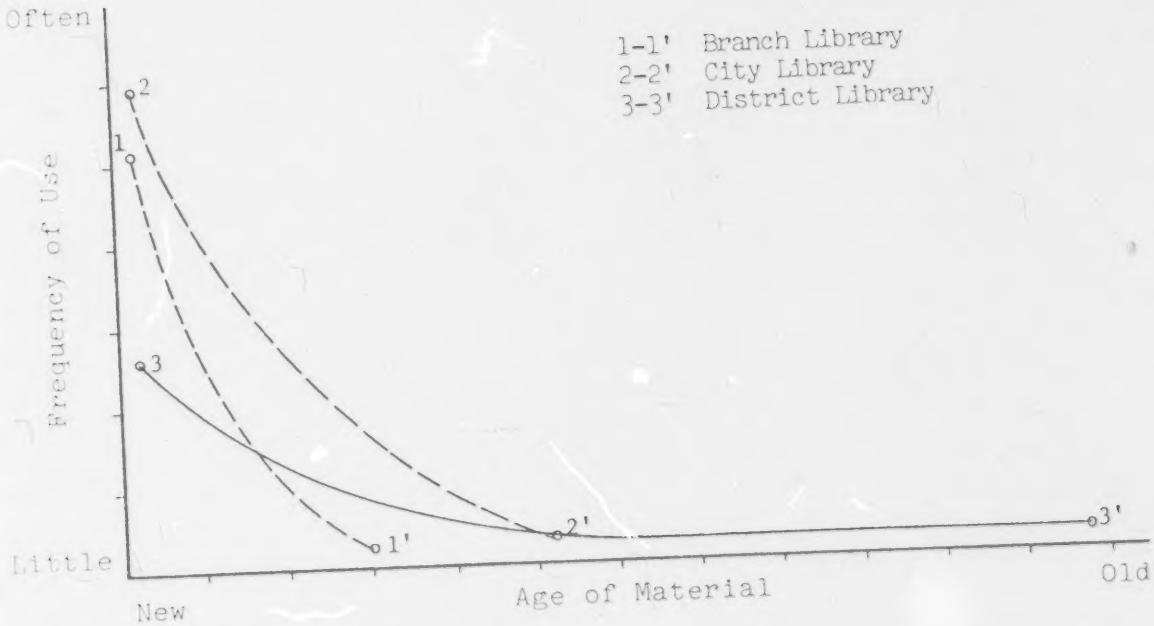

Fig. 3.1 Generalized Curves of Use Showing Relationships Used to Develop Selection Criteria for Materials in a System of Libraries

Adapted from Blasingame (6:22).

requirements for a public library requires application of the selection criteria and local purposes and program goals.

There are many reasons that libraries have not made more extensive use of media in their offerings. These are internal to the library operation and well-established concepts of what constitutes "a library" by both librarians and the public.

Earlier in the study format issues related to audiences and learning were reviewed: Examination of media which may be appropriate for the community library would seem to serve a useful purpose. Several assumptions need to be stated which relate to this:

Assumption 1: The public library deals with pre-packaged materials.

Assumption 2: Users do not articulate their needs fully and therefore utilization is based primarily upon what they expect to find in the library.

Assumption 3: The collection of library resources is based upon the sociological makeup of the community it serves.

Assumption 4: The pooling of library resources provides increased variety in materials available to the public.

Assumption 5: User demand will, in part, determine the extent and direction of allocation/reallocation

in expenditures.

Assumption 6: Extended or new offerings will require changes in budgeting patterns and reallocation of space.

3.2 Study Objects and Prints

Many public libraries maintain picture files. These are generally used for archival reference and in children's programs. They are generally filed according to subject headings and contained in file cabinets; access to information in the files is difficult except for the most diligent and circulation of these materials is not great.

Few libraries maintain collections of study objects--realia, models, educational games, toys--for patrons. (This is not true of instructional materials centers at the primary level.) These materials are difficult to handle and require constant inspection, repair, and replacement. When they are available they are normally used for display purposes and a "hands off" policy protects them from public use and inspection. Cooperative arrangements with museums have been developed in some cities to provide real materials for use by various educational institutions. Replicas are also available for study purposes from diverse periods and cultures.

Both types of materials serve to sharpen and develop learning abilities in the early childhood period and promote study and manipulation throughout life. These

functions are particularly relevant in communities where contact with materials of this sort are limited either by finances, environment, or apathy on the part of adults. The Montessori approach to learning is based upon contacts with, and manipulation of, specialized learning objects.

The Milwaukee Wisconsin Project among slum children and their parents depended heavily upon such contacts, to develop motor and intellectual skills. Working with mentally retarded mothers, the Infant Education Center Project studied the effects upon children of stimulation through materials and planned learning activities. Using control groups the study reports:

> . . . differences are dramatized in the finding that at 42 months of age, the children in the active stimulation program measured an average of 33 I.Q. points higher than the children in the control group, with some of them registering I.Q.'s as high as 135. (50:7)

The Wisconsin study does not in itself justify inclusion of these materials in library programs; it serves to point out inequities which exist among communities and the need for different approaches in meeting local learning and communication needs. Having real things, games, toys, and similar study materials available encourages children to utilize these resources to learn.

3.3 Audio Recordings

Popularity of audio recordings as an item in the public library is seen through expenditures for them. Nationally, $869,690 was reported spent in 1968, this

represents 1.2 percent of the total spent for all library materials and over one-fourth of the total budget for audiovisual materials. Because of their low unit cost, recordings represent the largest number of items in the audiovisual expenditure.

The great variety of recorded materials available utilize tapes and discs as the recording medium. Both formats use variations in packaging the material.

Discs of high quality are used for music and accompany other learning materials to provide narration, continuity, and instructions. Although quite subject to damage the disc is one of the most frequently encountered adjuncts to the print library. Small plastic records often accompany children's books and can be handled easily through standard check-out procedures. Standard discs require special storage, access, and previewing areas.

Tape recordings are available in several forms--cassettes, reel-to-reel, cartridge and laminated to cards. Each type requires a different piece of equipment for listening. This adds to the difficulty in handling all types.

The life time of taped materials is greater than that of disc recording since it is less subject to wear. The tape cassette is probably the most versatile format largely because of simplicity, ease of use, and prevalence of inexpensive listening equipment. Many families and individuals have easy access to portable equipment for

listening. The cassette is fast replacing the disc for school use, in part because it is an inexpensive approach to the addition of sound to other materials, but also because self-made recordings of lectures, stories, etc. can be easily accomplished.

A second tape format is the tape cartridge which is more specialized since it is almost always stereophonic. In addition to this advantage, it is easily adapted to continuous play so that it provides repetitive looping and does not require constant changing. It is not generally in use for educational materials.

Reel-to-reel tape is the standard for commercial recording. The various speeds used--1 7/8, 3 3/4, 7 1/4, and 15 inches per second (ips)--are dependent upon the recording/playback equipment available, but the materials are easily edited. Easy to handle in packaged form in the library, it is also easily erased by the user.

Magnetic tape laminated to cards was introduced in the early 1960's but is only now beginning to be extensively used, largely in language training. Each card will accommodate single words or phrases and can easily deal with special problems in pronunciation; pictures or words printed on the cards serve to assist in vocabulary building and word recognition in language learning. Complete sets of materials are available for primary levels and for foreign languages.

Language laboratories utilize specialized materials which have been largely developed at the point of use. This characteristic probably more than any other has brought about less and less use of expensive installations made since the late 1950's. Programing techniques involved imitation, reproduction, and comparison of words and phrases by students. Lab activity also provided discriminative listening and comprehension skills. The creation of materials requires long hours of teacher time; evaluation is equally lengthy.

Use of the language lab has branched into related fields. English literature, speech, and drama have used it to present selections by recognized performers. Using the same concept, persons with speech problems have been trained with programed material designed to deal with various speech difficulties.

The last uses mentioned closely approximate the dial access use of recorded material. Dial access equipment can accommodate many different program sources (usually reel-to-reel) and the user selects from a printed listing of programs that one program which is appropriate for his learning activity. These may include lectures, literature, or language materials at differing levels. The dial feature enables the material to be used either at carrel positions or through telephone lines. This enables "in library" and "out-of library" approaches to be developed. Best effects have been achieved when auxilary study materials are used

in connection with the audio source materials.

Sources of recorded materials are numerous, both commercial and educational. Depth and range in the content available on disc and tape are extensive, with tape having the advantage of low cost production at the local level. The National Center for Audio Tapes (NCAT) located at Boulder, Colorado serves as a national repository for recorded educational materials. Various educational institutions contribute these materials to the center where users can then have copies made for nominal service and tape costs.

3.4 Slides and Filmstrips

Slides and filmstrips cover a wide range of educational topics. They may exist for entertainment and/or didactic purposes. Projection and preview facilities are generally necessary either for groups or in individual study areas or carrels.

Because of its character, the slide is difficult to handle and catalog and retrieve, but it does have the advantage of adaptability to numerous purposes and situations. Series of slides can be adjusted to audience requirements, but once sequence is determined they can be accommodated in trays which are more easily handled. Preview and projection equipment is relatively low cost.

The filmstrip is more often used as an educational tool; into a fixed sequence can be placed a wide variety of

didactic materials. Storage and preview are easily handled. Often a number of filmstrips are combined into a series which explore a subject in some depth. Because of its fixed sequence, taped materials can accompany the filmstrip and provide narrative or story materials and questions may be asked to gain answers. Because of its low cost and other characteristics it is a widely-used medium for both entertainment and teaching, providing an excellent medium for individualized study.

3.5 Motion Picture Films

Motion picture films account, nationally, for the largest single expenditure for audiovisual items in the public library budget; a total of $1,836,300 was reported spent during 1968 (7:8). This accounts for 2.5 percent of all monies expended for public library materials and more than half of the amount spent for audiovisual materials.

Films are popular with library users and others because of motion, sound, color, and audience identification with the medium. The variety and depth in content coverage poses difficulty in selection-to-buy decisions. Films are self-contained packages and easy to process as check-out items, but require special storage equipment and repair arrangements. Training in use of projection equipment is essential because the film is easily damaged and repair or replacement is costly.

In low income neighborhoods films are accepted as

both education and entertainment. Accessibility to films in these areas is limited because theaters have moved away; that commercial sources of films (or entertainment generally) rarely occur at the neighborhood level may account for the film's high acceptability as an educational medium.

Films for educational usage utilize three major formats: (1) 16 mm format, (2) 8 mm format, and (3) super-8 mm format.

The 16 mm format has been the standard for release of educational films for many years. It is here that the greatest number of titles is available. Standardization of format enables 16 mm films to be used on any of a number of 16 mm sound projectors. Accessibility to this equipment is fairly widespread through schools, libraries, rental agencies or community groups.

Lack of standardization in 8 mm formats has caused difficulty for producers and users of 8 mm films. There are some nine different format variations possible. The market for "home-produced movies" has been behind this struggle and has limited the educational offerings, awaiting more agreement on standardization. Production of commercially packaged materials has been held back by this situation. Currently 8 mm equipment attempts to deal with this problem by mechanical adjustments which permit several formats to be used on a single piece of equipment.

Short "single concept films" present a variety of

subject content where motion and sequence are important; these are normally silent with titles. Longer films are available in both reel and cartridge formats; the number of titles is limited but growing. The 8 mm cartridge has the advantage of simple operation and is easily adapted to individual use in carrels or open space viewing when used with head sets.

3.6 Materials Utilizing Programed and Systems Approaches

Materials which utilize a highly planned approach to learning are often called "programed," since they carry out the didatic functions involved in teaching and learning--presentation, interaction and evaluation. These materials have done much to alter the approaches to teaching and learning and make it possible to cover course content outside the classroom. The self-teaching materials can be a single printed programed text or a collection of media which includes print and nonprint materials. Whichever may be the case the learning experience is guided and prepared about a series of learning tasks which have been stated in terms which require decision-making activity. This is characteristic of programed learning, computer-assisted instruction (CAI), and various learning systems. The chief differences among programed approaches is in the design of materials to provide for responsiveness within the program; that is, to adjust to an individual's entry

level skills and his rate of learning during the activity.

Programs are based upon two program design techniques--linear and branching techniques. Linear programs generally take all students through the same sequence of learning; rate being determined by his speed in task completion. Branching programs vary the sequence of learning by being responsive to which choice an individual selects in response to each question; the program may require him to back up or to review material, or it may quickly advance him into the program to a point at which the content will challenge his knowledge and skills. Carl H. Hendershot's Programmed Learning: A Bibliography of Programs and Presentation Devices provides a manufacturers' and a subject index to materials and equipment available in this area.

Most programed texts employ linear techniques in their design--though the "scrambled book" uses a simple branching technique--and are available in a wide range of content areas and grade levels. Program texts are readily available and in use in primary and secondary schools. Though these may have the appearance of regular texts, their organization is based upon a series of questions and answers accompanied by self-administered progress tests to assist a learner to evaluating his mastery of the content. Generally no equipment is required for their use. Either answer sheets or work pads should be suggested to users, since the writing of answers in the texts may lessen the

impact upon later users of the program.

Teaching machines are sometimes used with programed learning materials and may employ separate answer sheets as one feature. Machines can vary sequence in the programed material when it has been so designed and thus provide greater individual responsiveness. Many machines serve only to present the linear programed content, but may present it in the visual and/or audio modes, thus reducing the importance of reading skill. This is helpful at the primary levels and in foreign languages.

Computer applications of programed learning combine many of the techniques used in simpler programing approaches. Increased responsiveness to an individual's knowledge and skill can be built into the program since switching is handled electronically. Key questions can assess his ability quickly and place him in contact with advanced content. Thus he will be required to use and develop skills which are less routine in his repertoire of behaviors, constantly challenging him into higher levels of learning; conversely if his ability is of a lower order, the program can easily shift to content for review or of a remedial nature. The capability of CAI can be compared to that of a microscope with a series of magnifying lenses which can be switched from a general view to closer and closer study of a subject or by a shift in the slide, new elements which make up that content can be brought into focus. High costs and lack of variety in programs have inhibited CAI's

general use in education.

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Learning systems also utilize the programing approach and have been applied to many school subjects. These are primarily in areas where content and skills have wide application and acceptance throughout the country--reading, English, arithmetic, etc. The curriculum is divided into small instructional units and behavioral objectives are developed for each of these. In describing Individually Prescribed Instruction (IPI), its authors describe the learning arrangements as follows:

> A set of units covering different subject areas in mathematics comprises a level; levels may be thought of as roughly comparable to a school grade level. On entering the school the student takes a placement test; on the basis of his performance he is placed in a particular unit. . . . Associated with the unit are a preliminary test (a "pretest") and a post-training test (a "posttest"), and associated with each objective (or skill . . .) are one or more "curriculum-embedded" tests (CET). Following assignment to a unit, the student takes the unit pretest, designed to give an evaluation of his skills within the unit . . . ; at this point the teacher prescribes work related to the skills he has not mastered. As a student works through a lesson, he takes, at the teacher's discretion, the "curriculum-embedded test," which shows whether or not he has mastered the skill and also to what extent he has attained some competence on the next skill. If his grade is 85 percent or more, he begins work on the next unit; if it is not, he is reassigned an appropriate objective in the unit he has been working on. The teacher is allowed a certain discretion in deciding whether to keep the student in a given unit or move him ahead. (11:449)

Many of the learning systems were not initially automated but depended upon the teacher to manage, guide, and direct the student. Gradually systems are moving to use of the computer to assist in this process and computer

managed instruction (CMI) is a growing field.

Another learning system has moved to a higher order by incorporating the learning systems just referred to, with other programed materials and an instructional team of teachers. Individually Guided Education (IGE) has as its purpose "to improve learning through improving the learning environment" (11:454). This is attempted through increased cooperation among staff by focusing more directly at learner needs and abilities.

The audio-tutorial system has been developed primarily in higher levels of education. It attempts to break the present lecture orientation to coursework by developing activity units based upon lecture content. Recognizing different types of skill-orientations in a content field, varied activity units related to desired skills are developed and appropriate media is designed to match content objectives. Students are directed by a taped voice of the instructor through a series of laboratory experiments and observation activities designed to heighten content meanings and relationships. Programs of this type are developing in colleges and universities throughout the country, particularly at the undergraduate level and in junior colleges.

3.7 Television

The impact of television has been notable over the past twenty years. Television technology will continue to

change our institutional structures as it develops. The Corporation for Public Broadcasting was created in 1967 to encourage the growth of non-commercial radio and television including uses for instructional purposes. As an agency it could receive public and private funds to assist it furthering its purposes. As a result of its establishment, the CPB has encouraged coordination of educational efforts in television throughout the country. Its efforts include: adult programs for high school equivalency in mathematics, natural sciences, social studies, literature, and grammar; programs dealing with environmental issues; health information programs for adults; programs offering university degree credits for persons outside the academic community. In order to carry out these and other programs, its functions are implied from the following information in a 1971 brochure:

> The Public Broadcasting Service (PBS), which manages the network, ties together public television stations and develops national programming.
>
> National Educational Television (NET), which is a national program production organization, provides a major portion of the evening programming seen on public television channels. The Children's Television Workshop-produced "Sesame Street" and "The Electric Company" are two examples.
>
> Six regional and twelve state educational television networks link together numbers of geographically related stations and facilitate exchanges of programs among them.
>
> The National Association of Educational Broadcasters (NAEB), which is supported by virtually all components of public broadcasting, and its Educational Television Stations (ETS) division include a program service for PTV stations.
>
> Finally, the Corporation for Public Broadcasting itself was instrumental in setting up the national

> network of public television. It carries on various grant projects that assist stations and producers of national programs. In addition, it conducts programs of research, public information, and talent development, all calculated to improve the service of public television. (11:254)

The Federal Communications Commission has reserved channels in the 2,500 MHz band for use by school systems. Operating in a limited range and on low power, this system is less expensive than either VHF or UHF installations. Instructional Television Fixed Stations (ITFS) makes possible the broadcasting of programs over short distances and is not picked up by standard television receivers. ITFS provides, in essence, a private signal which can be received and converted, then distributed on a school's closed-circuit facilities. Closer tie-ins with other educational efforts are possible in communities where ITFS is in operation. A number of larger cities and districts are using these installations which can use as many as twenty channels to meet their needs for presenting various school subjects, grade level and administrative requirements.

Community Antenna Television (CATV) is another rapidly developing service. Each CATV can either initiate or relay broadcasts over its system of cables to paid subscribers. The cables can carry thirty or more programs simultaneously for purposes of distribution. Dependability and high quality of the signal are features important to educational users where graphic and demonstration

materials form an important part of the program content. Through efforts of the National Education Association 20 percent of the CATV channels have been reserved for educational purposes. Some of its advantages for educational usage are:

> Permits redistribution of open-circuit instructional television broadcasts over additional channels at a variety of times and on schedules useful for classroom utilization.
>
> Facilitates electronic distribution of films or other motion/sound media via CATV channels from a central library of materials for teacher previewing, class showings, or rerecording for later use.
>
> Provides opportunities to offer special audiences programs they desire, such as a "second language," preschool education, and school-home counseling.
>
> Permits the transmission of teacher education programs for in-service instruction for use after school or at other convenient times, making it unnecessary for participants to travel to colleges, universities, or other special training centers.
>
> Connects clusters of schools through existing cables to permit exchange of programs that students produce.
>
> Permits teachers to observe demonstration teaching sessions and participate in other in-service teaching activities.
>
> Provides data transmission capabilities for administrative or counseling information and other facsimile transmission.
>
> Offers a means of transmitting adult education programs directly to homes. (11:25)

Another development in television technology which holds much potential for libraries is that of pre-recorded video cassette systems. Reel-to-reel video tape recorders (VTR) have been standard for some time, the introduction of the cassette offers potential and ease in handling not before available. The system utilizes a playback machine about the size of the average tape recorder and a

self-contained cassette that slips easily into place. Equipment can be connected to any standard television receiver for playback.

The two problems facing the user are (1) lack of compatability between various manufacturers' video equipment (hardware) and (2) the limited rumber of packaged programs which are currently available (software). There is a minimum of eight manufacturers producing equipment of this type, technical specifications do not permit interchange of cassettes from one model to another. The software supply problem will also continue to hamper extensive use. There are a number of titles which are being transferred to the cassette format through the Film Library Information Council and the National Audiovisual Center; these are primarily older titles and titles which are not restricted because of copywrite laws. As more software becomes available the potential for local library ownership and networking of television material can provide library users with improved services and sources of audiovisual materials.

PART 4. SUMMARY OF TRENDS AND ISSUES

The concept of the free public library grew at a time when the general population of the country was information-poor, and the need for the unification of local print resources was recognized as a solution to this problem. Subsequent development and technological invention have impinged upon the library concept through changed methods of information delivery and consumption. Changes in community structure and the growth of the large metropolitan area now pose questions as to the viability of the library program to meet community informational needs. Multiplicity in the concepts of function and purpose for the public library has arisen from professional librarians and the public alike. Participation by federal and state governments has been offered to support local efforts in developing and defining improved services to an array of community-centered institutions. The role of multi-media in this situation is in need of clarification.

4.1 Recognition of Different Kinds of Services to Different Communities

The "broad-based" approach to library development is one which meets the needs of a few people, some of the time. The impact of mass media has changed users' recreational and "serious" uses of the library and other media.

with much greater selectivity being exercised at all levels. The public library program has been effected by this competition to provide informational services, and library policies have adapted slowly to a media-rich environment.

As cities have grown larger, the community base of the library has grown more remote. Information which the library provides is often not available to large segments of a community because of language and reading skills required to gain access to it; its collection is often directed to content of little concern to residents; its programs are not directed to community-involving issues and activities; its administration is abstractly related to the community where the library is located.

These problems reflect a growing pluralism which has become characteristic of our society and which is predicted to increase.

> This emergent--and newest--thrust seems to hold potentially the greatest promise to achieving genuine integration since it concomitantly recognizes common goals (e.g., economic self-sufficiency, a healthful environment, improved educational programs) and purposes to work cooperatively on the ways to achieve them. (20:8)

Recognition of these broader social goals has not provided an easier task for the library in defining its functions and purposes. That media can serve as one alternative in dealing with the goals, there is little doubt. How media fits into these purposes depends upon the clarification of purposes and the view that is taken

of media. Before either goals or media relationships can be developed there is a pressing need to recognize that institutions in different localities serve similar, but distinct functions. It is not incongruous to conceive of libraries fulfilling totally different purposes in their communities. It is unfortunate, but not by accident, that library responsibilities are most often defined in terms of their library functions rather than their informational functions within a community; their institutional character rather than community purposes. Recognition of these differences is crucial prior to development of purposes related to media.

4.2 Statements of Library Goals and Purposes At the Local Level Is a Primary Issue

Professional discussions in the literature on the library reflect diversity in roles of the public library. This diversity reflects an accumulation of historic and social functions which need to be brought in line with local aspirations and needs. There is much overlapping of functions in agencies devoted to public education and information services. There is duplication internally within the library services provided to the public through educational and local governmental agencies. The recognition of specialization within library functions has not held back development of different kinds of libraries for various "communities" (the university, the public school,

the professions, etc.). Once their purposes have been defined and needs established; the character of their informational services is more easily defined.

Accountability

In attempting to justify public investment, the library has been pressed into describing its services and then detailing the extent of these services; its evaluation has been primarily quantitative. Qualitative measures of service are difficult to derive, and constitute an impossible effort without some statement of those services which the library attempts to offer. Implicit within the concept of accountability lies the responsibility to perform specific tasks with some level of proficiency or to deal with a product with some degree of efficiency. The output of such programs is therefore related to activities and qualitative estimates of their achievements. Until such relationships are determined can the public library hope to compete with other public institutions whose requirements can be assessed and whose demand for public funds are increasing?

The relationship of purpose and use in media is most direct. If media are intended to attract more persons to the library, it is of use to know how many times the media were used and to extrapolate the possible audiences which may have seen them. This output data alone do not justify further program expansion, however. When

activity becomes aligned to an agreed upon function which is described as desirable, performance standards and qualitative input/output relationships can be developed to provide evaluation of program effectiveness in terms of output.

Determination of purposes

Recognizing a heavy stake in its local institutions, the community's role in determination of those services and functions to be provided is crucial. Given the fact that the public library relies almost entirely upon local sources for its funds, it has maintained a high degree of isolation from similar local agencies for accountability in services provided and in planning program direction.

The library's present role in the community is accepted as necessary and viewed as static. Changes from this role are likely to be perceived as threatening by other institutions unless local involvement constitutes a major part of this process.

Participation by other levels of government and the profession must account for this situation and be supportive of it by suggesting and providing alternative solutions and tested models which point direction and suggest patterns. Operations research which focuses on fiscal and legal policy, operational accountability and cooperative development of services will not reasonably

be assumed by the community acting on its own. Local financial support of the public library is still at a relatively low per capita level. Major investments in new services and program would be difficult to justify unless savings can be realized through realignment with other public services. Hard data are a product of well designed research and can suggest channels and relationships by which a community can formulate new policies and build institutional alignments for improved services and fiscal responsibility. Operations research can suggest solutions. Once this chain of events is operating, determination of the type of institution and the services it should provide is reasonably centered in the community which will use them.

4.3 Is It Reasonable to Assume That the Public Library Can Serve As An Outlet for Packaged Instruction?

At the present time one of the two primary services carried out by the public library is that of providing supplemental resources for school-related activity. The school instructional resources center is fast gaining acceptance as a major resource tool in the educational process. Trends in education point the direction towards increased use of packaged materials for direct instruction of pupils. Technology is developing delivery systems which will enable instruction to go on in many different places.

These are trends which indicate a positive answer to this issue; the potential is there, but so are the barriers.

Legal barriers

Institutionalization of education holds a strong grip on the credit system and the attendance base for support of education. Jurisdictional authority and restrictive legislation hamper cooperative development of community resources by local government agencies. Copy-write laws inhibit mass media dissemination of packaged educational materials.

Cost barriers

Tax limitations require new patterns of financing and shared costs for owning and distribution of materials and equipment. Costs of systems for physical and electronic networking of materials are not now available and will require analysis and estimation. Analysis of community needs and requirements call for research and development funding and development of qualified manpower. Increase in the variety of media will require funding in support and supply areas beyond that now available.

Personnel barriers

Introduction of new roles and duties require changes in professional and paraprofessional working relationships. To what extent will direct instruction play a part in the program? What teacher functions will be

necessary? What part will the professional library staff play in instruction? . . . the paraprofessional? What roles will be assigned as technical? . . . as administrative or supervisory? What new functions will be required to carry out the program? Should instructional functions be separated from present and ongoing programs in information delivery?

Personnel constitute perhaps the greatest barrier because of their resistance to change efforts. A study of roles and job functions in pilot programs should constitute a major focus in such analyses. The preliminary work which has been done in this area will be useful but it is neither definitive nor validated since little is really known about how new functions can alter the present job duties.

Program scope as barriers

The concept of packaged instruction is not wholly new, its occurrence on a large scale at locations other than in formal settings is not a practice which has been dealt with logistically. The number of totally packaged programs is small; most are still heavily dependent upon teacher intervention for guidance and evaluation. They provide segments within the educational process but do not take it full around. The teaching act involves three elements: (1) presentation, (2) interaction, and (3) evaluation. As segments, the materials can provide

content and skills, formative materials which are a part of education but seldom do they take it to a higher level or relate it to other domains of learning. Here the juxtaposition of content and meaning undergo discussion and evaluation as value complexes. Whether these advanced level materials can be packaged remains a question.

BIBLIOGRAPHY

1. Allen, William H. and Donald H. Coombs. "Trends in Instructional Technology." Eric Planning Report. Stanford: Stanford University, 1970.

2. Atkinson, Richard C. and H. A. Wilson, eds. Computer-Assisted Instruction. New York: Academic Press, 1969.

3. Ball, Samuel and Gerry A. Bogatz. A Summary of the Major Findings from "Reading with Television: An Evaluation of the Electric Company." Princeton, New Jersey: Educational Testing Service, 1973.

4. Benford, John Q. "The Philadelphia Project." Library Journal, June 15, 1971.

5. Berelson, Bernard. The Library's Public. New York: Columbia University Press, 1949.

6. Blasigame, Ralph. "Feasibility of Cooperation for Exchange of Resources among Academic and Special Libraries in Pennsylvania." Pennsylvania State Library Monograph No. 5. University Park, Pennsylvania: Institute of Public Administration, 1967.

7. Boaz, Ruth. Statistics of Public Libraries Serving Areas with At Least 25,000 Inhabitants. Washington, D.C.: Superintendent of Documents (HE 5.215: 15068-68), U.S. Government Printing Office, 1968.

8. Bobinski, George S. Carnegie Libraries: Their History, and Impact on American Public Library Development. Chicago: ALA, 1969.

9. Bogatz, Gerry A. and Sam Ball. The Second Year of Sesame Street. Vols. I and II. Princeton, New Jersey: Educational Testing Service, 1971.

10. Bremer, Anne and John Bremer. Open Education: A Beginning. New York: Holt, Rinehart and Winston, 1972.

11. Brown, James W., Richard B. Lewis, and Fred F. Harcleroad. AV Instruction: Technology, Media, and Methods. New York: McGraw-Hill, 1973.

12. Campbell, Angus and Charles A. Metzner. Public Use of the Library. Ann Arbor, Michigan: University of Michigan, 1952.

13. Carnegie Commission on Higher Education. The Fourth Revolution: Instructional Technology in Higher Education. New York: McGraw-Hill, 1972.

14. "Community Control of the Libraries: A Philosophical Position." Editorial. American Libraries, June, 1970.

15. DeBernardis, Amo, et al. Planning Schools f r New Media. Portland: Portland State College, 1961.

16. Ellsworth, Ralph E. Planning the College and University Library Building. Boulder, Colorado: Pruett Press, 1968.

17. Erickson, Carlton W. H. Administering Audio-Visual Services. New York: Macmillan, 1959.

18. Fenz, Roland E. "Where the $$$ Come From--Part 2." Educational Television. Vol. III, No. 6, June, 1971.

19. Gage, N. L., ed. Handbook of Research on Teaching. Chicago: Rand McNally, 1963.

20. Garrison, Guy, ed. Total Community Library Service. Chicago: ALA, 1973.

21. Godfrey, Eleanor P. The State of Audiovisual Technology: Monograph 3. Washington, D.C.: DAVI, 1967.

22. Green, Alan C., ed. Educational Facilities with New Media. Washington, D.C.: DAVI, 1966.

23. Heinich, Robert. Technology and the Management of Instruction: Monograph 4. Washington, D.C.: AECT, 1970.

24. Hitchens, Howard, ed. Selecting Media for Learning. Washington, D.C.: AECT, 1974.

25. Hyer, Ann. Planning Schools for Use of Audio-Visual Materials. Washington, D.C., DAVI, 1952.

26. Illich, Ivan. Deschooling Society. New York: Harrow Books, 1972.

27. Issari, M. A. "Kineklip: A Quick Access to Film Utilization." Journal of the University Film Association, Vol. XXIV, No. 4, 1972.

28. Jencks, Christopher, et al. Inequality. New York: Basic Books, Inc., 1972.

29. Johnson, Jean Thornton, et al. AV Cataloging and Processing Simplified. Raleigh, No. Carolina: Audiovisual Catalogers, Inc., 1971.

30. McBeath, Ronald J., ed. Extending Education Through Technology. "Selected writings by James D. Finn." Washington, D.C.: AECT, 1972.

31. Merrill, M. David and R. Irwin Goodman. Selecting Instructional Strategies and Media: A Place to Begin. Provo, Utah: Brigham Young University, National Special Media Institutes, 1972.

32. Molz, Kathleen. "Halfway Houses to Learning." American Education, Vol. VI, No. 4, May, 1972.

33. National Commission on Libraries and Information Science. Annual Report 1972-1973. (5203-00022.) Washington, D.C.: Superintendent of Documents, 1974.

34. Newspaper Enterprise Association. The World Almanac and Book of Facts. New York: Newspaper Enterprise Association, 1974.

35. Peterson, Theodore, et al. The Mass Media and Modern Society. New York: Holt, Rinehart and Winston, Inc., 1965.

36. Rankin, Paul T. "Listening Ability: Its Importance, Measurement, and Development." Chicago Schools Journal, XII (January, 1930), 177-179.

37. Reid, Christopher and Donald W. MacLennan. Research in Instructional Television and Film. (FS 5.234: 34041.) Washington, D.C.: Superintendent of Documents, 1967.

38. Rossi, Peter H. and Bruce J. Biddle. The New Media and Education. Garden City, New York: Anchor Books, 1967.

39. Saettler, Paul. A History of Instructional Technology. New York: McGraw-Hill, 1968.

40. Saxe, Richard W. Opening the Schools: Alternative Ways of Learning. Berkeley, California: McCutchan, 1972.

41. Schmieder, Allen A. Competency-Based Education: The State of the Scene. Washington, D.C.: American Association of Colleges of Teacher Education, 1973.

42. Schramm, Wilbur, ed. The Impact of Educational Television. Urbana: University of Illinois Press, 1960.

43. Schramm, Wilbur, ed. Mass Communications. Urbana: University of Illinois Press, 1960.

44. Schramm, Wilbur. "Procedures and Effects of Communication." Mass Media and Education. Fifty-third Yearbook of the NSSE, Part II. Chicago: Chicago University of Chicago Press, 1954.

45. Schramm, Wilbur, et al. Television in the Lives of Our Children. Stanford, California: Stanford University Press, 1961.

46. Standards for School Media Programs. Washington, D.C.: American Library Association and National Education Association, 1969.

47. State Education Department of New York. Towards a Common Goal--School-Public Library Cooperation. Albany, New York: The University of the State of New York, 1968.

48. Stone, C. Walter. "AV Task Force Survey Report." American Libraries, January, 1970.

49. Stone, C. Walter. "Training Public Librarians for Educational Work with Adult Groups," University of Illinois Library School, 1955. (Mimeographed.)

50. Stone, Elizabeth. Training for the Improvement of Library Administration. Champaign, Illinois: Illini Union Book Store, 1967.

51. Strickland, Stephen P. "Can Slum Children Learn?" American Education, Vol. VII, No. 6, July, 1971.

52. Technological Applications Project. Mini-Catalog of Instructional Systems. Corvallis, Oregon: U.S. International University, 1974.

53. Toffler, Alvin, ed. Learning for Tomorrow. New York: Vintage Books, 1974.

54. Trow, William Clark. "Alternatives or Needs." Educational Technology, January, 1972.

55. Trump, J. Lloyd. Images of the Future. Washington, D.C.: National Association of Secondary-School Principals, 1959.

56. "U.S. National Advisory Commission on Libraries Report." (Reprinted from the Congressional Record October 21, 1968.) ALA Bulletin, LXIII (January, 1969), 67-94.

57. Wallington, C. James, et al: Jobs in Instructional Media Study (June). Washington, D.C.: Department of Audiovisual Instruction, 1969.

58. Wasserman, Paul. The Librarian and the Machine. Detroit: Gate Research Company, 1965.

59. Waugh, Lynne and John Waugh. "Albuquerque's Free-Wheeling Library." American Education, Vol. VII, No. 7, August-September, 1971.

60. Woefel, Norman and I. Keith Tyler. Radio and the School. Yonkers-On-Hudson, New York: World Book Co., 1945.